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COMMERCIAL CAR JOURNAL
THE MAGAZINE FOR FLEET OPERATORS

Transportation Library

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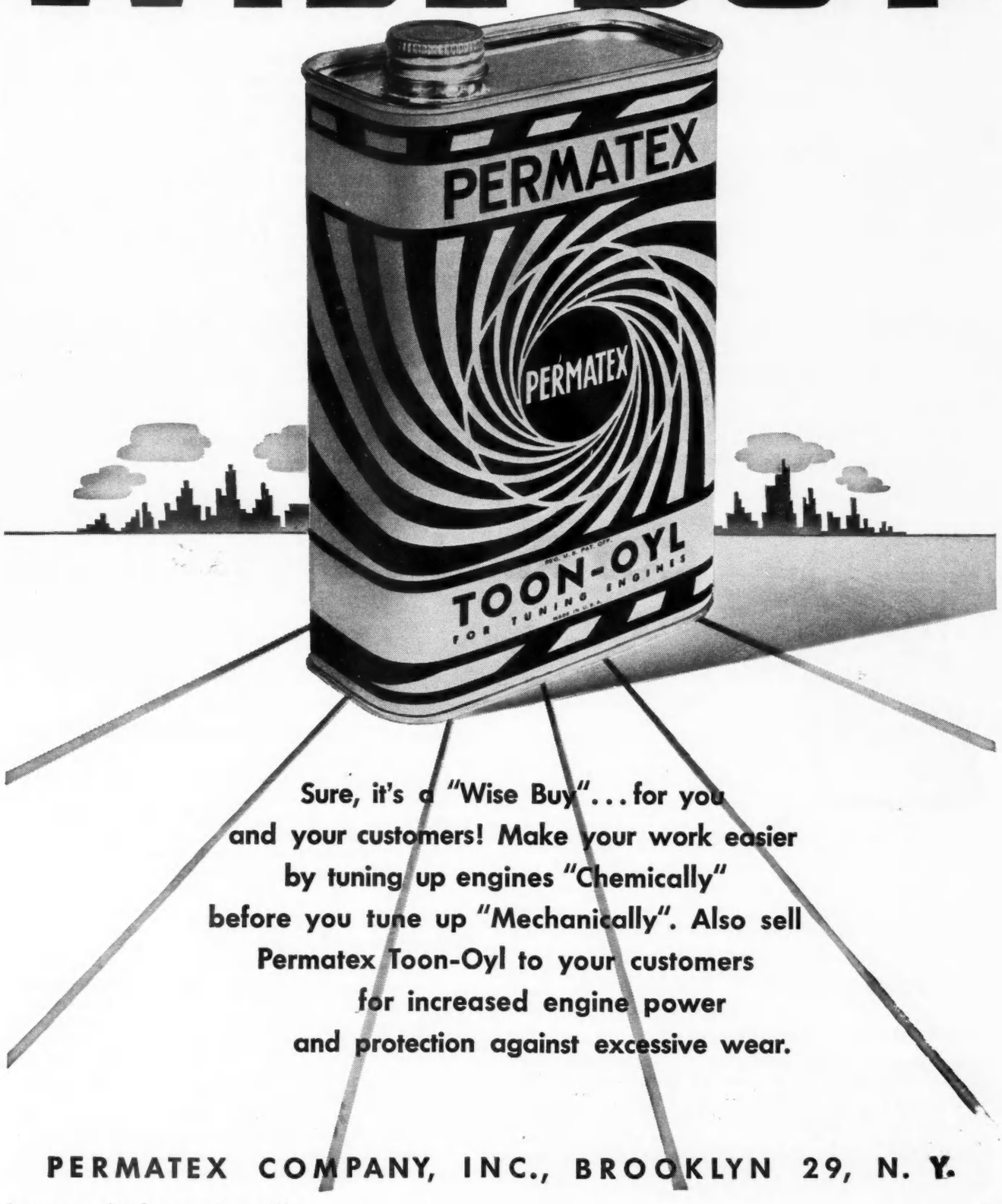

Sure, it's a "Wise Buy"... for you and your customers! Make your work easier by tuning up engines "Chemically" before you tune up "Mechanically". Also sell Permatex Toon-Oyl to your customers for increased engine power and protection against excessive wear.

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COMMERCIAL CAR

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CCJ Reader Digest

Truck Makers Add Features

There are a number of important new model announcements in this issue. Federal leads off with a whole new line of light and medium models on page 72. The new Autocar "Drivers' Cab" is described on page 76 and a new Peterbilt C.O.E. on page 78. Then there are added models by Reo, page 31; International Harvester, page 112; and White, page 102.

Selling Safety Cuts Accidents 61%

Truck rental fleets have a tough safety problem. Usually, they furnish the vehicle and its maintenance but have no control over the selection of the driver—who may or may not be properly trained. This West Coast rental fleet had so many accidents that its insurance carrier was ready to call a halt. What happened thereafter is good reading for safety-minded fleet operators. See page 62.

Blueprints of Progress

Three hundred and fifty truckers from all parts of U. S. crammed into the Morrison Hotel in Chicago, May 8 to 12, to take part in a special deluxe version of the ATA Spring Meeting. They talked about control of vehicle noise, improvement of employee relations especially with respect to drivers, upping efficiency in terminal operations and promised new safety records for the industry in the coming months. The Equipment Advisory Committee adopted the 7-circuit electrical connector, reported progress in its study of air brake systems and in developing specifications for interline interchange of semi-trailers. Here's a first-hand account developed from those who were there. See page 60.

JOURNAL

with which is combined Operation & Maintenance
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Coordinating Dispatching into 92 Zones

NAVL, a transcontinental household goods carrier has its "finger tips" on the movement of 300 to 400 moving vans at practically any moment. Also, it can tell if the vans are loaded to capacity or if useable cubage is available. The system is divided into five major areas with 92 shipping zones, all connected, directly or indirectly, by a national intercommunication system. For full details how smoothly this system works, see page 49.

Campaigns Cut Bus Maintenance

When mechanical failures occur on Ohio Valley Buses, the maintenance superintendent and his staff use unique and ingenious methods to see that they don't happen again—even if they have to make design changes. Many such changes have completely wiped out road failures. One example is changing from a 4-point to a 3-point radiator suspension system. For details see page 52.

St.Paul
extra heavy duty...
...and then some

This 10 cubic yard semi-trailer dump body is one of seven St.Paul Units hauling rock on a 30-mile round trip (75-minute cycle) at Harlan Dam, Nebraska. The trucks work 16 to 20 hours per day six days per week traveling over an improved dirt road with electric eyes controlling traffic at 90 degree turns.

The bodies feature double I-beam longitudinals and 4-inch I-beam outside bracing. A two-inch hardwood cushion in the floor is topped with a ¼-inch wearing plate. Body shell is ¼-inch steel. The hoist is the St.Paul Model 95, noted for its ability to dump heavily loaded bodies, even in badly distorted positions.

Whether you need a special body like this or a standard dump truck unit, put in a call to your St.Paul Distributor. He's a dump unit specialist . . . and ready to serve you!

ST. PAUL DIVISION
GAR WOOD INDUSTRIES, INC.
2207 University Ave. S.E., Minneapolis 14, Minn.

2 WAYS TO ON OPERATING

reduce 1 maintenance costs

2 fuel consumption

by lubricating with TEXACO D-303 MOTOR OIL

Heavy-duty gasoline and Diesel engines need a fully detergent-dispersive oil to run their best. *Texaco D-303 Motor Oil* is the one to use. It's aces-high in resistance to oxidation, keeps engines free of power-stealing carbon, gum and sludge. It *cleans as it lubricates.*

By thus assuring clean engines . . . protecting bearings against corrosion, and parts against wear . . . *Texaco D-303 Motor Oil* sharply reduces both maintenance costs and fuel consumption.

Another way to save on operating costs is to lubricate chassis bearings with *Texaco Marfak,* and wheel bearings with *Texaco Marfak Heavy Duty.* They give extra hundreds of miles of protection, prolong the life of chassis and wheel bearings. No seasonal change is required.

Let a Texaco Lubrication Engineer give you a hand in reducing vehicle operating costs. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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TEXACO STAR THEATER
starring MILTON BERLE
on television
every Tuesday night.
See newspaper for
time and station.

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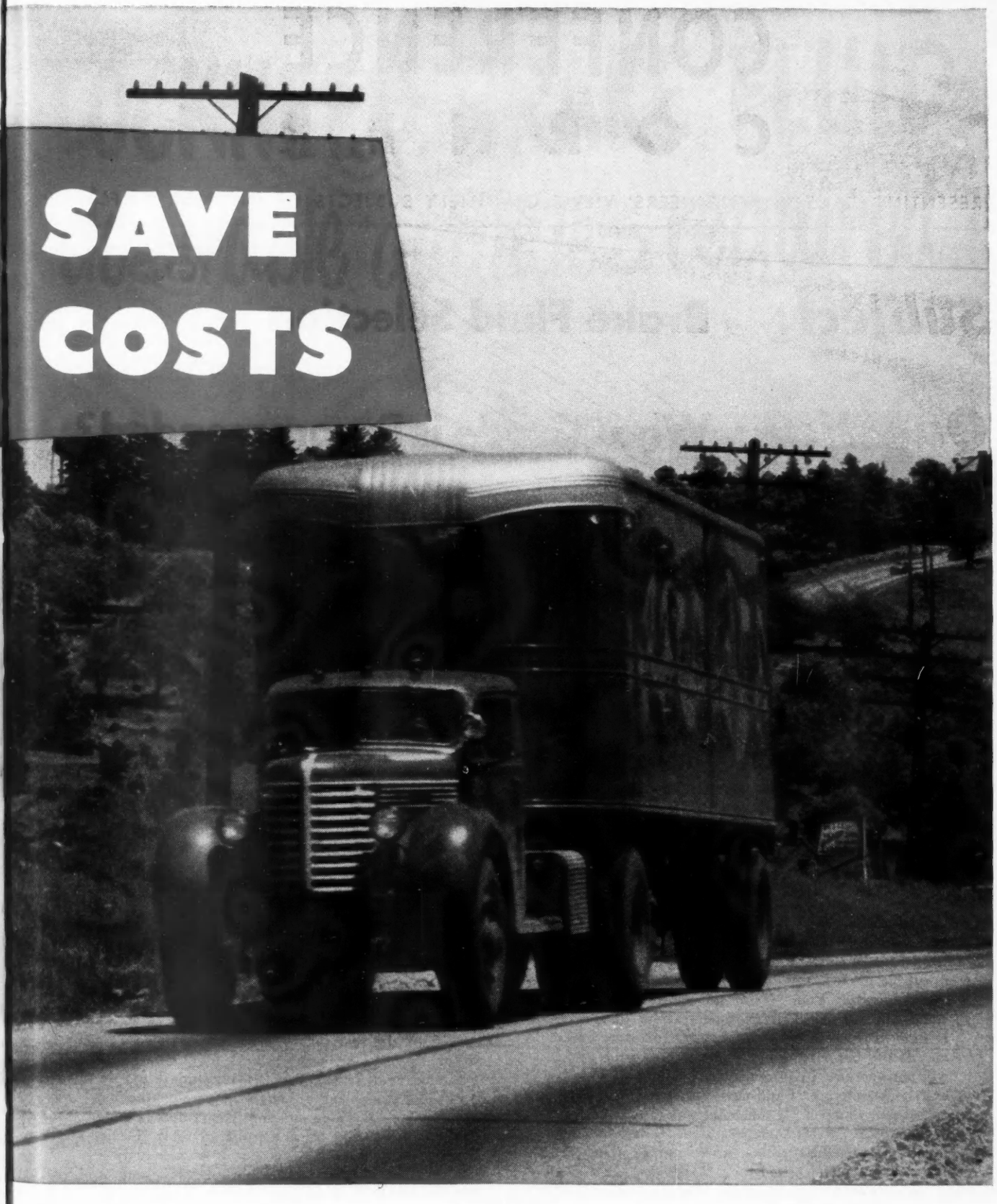


Lubricants and Fuels

FOR THE TRUCKING INDUSTRY

CONFERENCE CORNER

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: Brake Fluid Selection

Question: What Grade is Recommended?

A survey of several manufacturers indicates that the best grade of brake fluid is the cheaper and the safer in the long run. While operation, temperature, loads influence the choice, heavy-duty types insure trouble-free operation.

Temperature and Operation Should Dictate Choice

by L. C. Dobrunz

Wagner Electric Corp.

HEAVY-DUTY hydraulic brake fluid is recommended for vehicle operation in extreme temperature areas, or under extreme driving conditions. In geographical locations where temperatures are above or below the limitations of "moderate duty" fluids, heavy-duty fluid is necessary. Heavy-duty fluid is recommended for use in heavy vehicles operating over steep grades or at high speeds, where severe braking is required.

Some of the common troubles arising from inferior brands of brake fluids are as follows:

Vapor Locks—One of the chief causes of brake failure. Fluid with low-boiling point fails to withstand high operating temperatures generated by braking on steep hills or at high speed. Fluid boils, vaporizes—result, no brakes.

Low Freezing Point—Fluid not amply able to withstand cold may slow up the operation of the brakes. If fluid viscosity goes above 2200 centistokes, brakes may fail to the point where one or more of the brakes will not operate. Requirements for winter driving are extremely exacting. Fluid must not freeze up, thicken or become sluggish. It must not separate, solidify or crystallize at sub-zero temperatures. (Caution—Some fluid claims on these points proved untrue when carefully analyzed and tested.)

Inability to Absorb Moisture—Even a perfect brake system will contain some water, through condensation if no other way. If there is free water in the fluid, it will boil off leaving air pockets which will compress when brakes are applied or water may freeze in cold weather.—Result, disaster.

Causes Rubber Parts to Swell—Fluid must be free of all mineral oil bases, since mineral oil attacks rubber cups, boots and hose causing them to swell to the extent of immobilizing moving parts—result, brakes inoperative.

Improper Lubrication—Fluid not containing proper lubricating qualities fail to protect vital working parts—result, excessive wear, brake failure.

No Rust Inhibitor—Lack of rust inhibiting qualities in inferior fluids allow metal parts to corrode or rust—subject to sticking or "freezing"—result, erratic braking performance, eventual failure.

Gummy Residue—Brake fluids that deposit a gummy residue on moving parts when open to air or under high heat conditions retard the movement of those parts—result, gradual faulty operation until finally, no operation.

Heavy-Duty Types Eliminate Vapor Lock

by V. M. Mantz

R. M. Hollingshead Corp.

WE recommend the use of SAE Heavy-Duty Fluid for heavy-duty equipment such as trucks and buses. The trend seems to be more and more toward the heavy-duty fluids as is evidenced by the fact that some of the leading car manufacturers are using SAE Heavy-Duty Fluid in their original equipment, although they are continuing to sell both SAE Moderate and Heavy-duty Fluids through retailers. The advantage of an SAE Heavy-Duty Fluid are primarily those of a higher boiling point, and therefore a lower vapor pressure, and a higher flash point, than the SAE Moderate Duty Fluids. We understand that the braking systems of some of the newer cars develop higher temperatures, so therefore, a fluid with a lower vapor pressure is important in order to decrease the possibility of vapor lock. Heavy-duty truck equipment with hydraulic brakes find it necessary to use the heavy-duty fluid for the same reason.

(TURN TO PAGE 10, PLEASE)

LOCKHEED BRAKE FLUID
desirable qualities required...

for ALL operating conditions

...in ALL seasons!

You'll find many advantages in using Wagner Lockheed—the best known name in brake fluid. It is unsurpassed for dependable performance, and mixes with all other approved types of fluid. It's an all-season fluid that functions under all driving temperatures, and meets or exceeds S. A. E. standards.

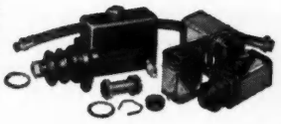
Wagner Lockheed Brake Fluid maintains its chemical characteristics and lubricates the brake system over the operating range of temperature.

As a pioneer in the manufacture of hydraulic brakes, Wagner *knows* the qualities a good brake fluid must have — and you'll find them all in Wagner Lockheed Brake Fluid.

WAGNER CoMaX BRAKE LINING

—offers complete coverage for all your needs . . . in sets, rolls, blocks, slabs and cut segments. A non-compressible, long wearing lining of uniform texture.

WAGNER LOCKHEED HYDRAULIC BRAKE PARTS



—a *complete* line, covering *all* makes of cars and trucks including seldom used, slow-moving parts not easily obtainable elsewhere.

You can depend on WAGNER QUALITY because Wagner products are used as original equipment by automobile, truck and trailer manufacturers. See your nearest Wagner jobber or write us for details.

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SERVICE NOTES

Briefed for Fleets From Manufacturers' Bulletins

● Chevrolet ●

Front Spring Assembly

An eleven leaf front spring assembly, having a higher deflection rate, was used in the late 1949 production on all long wheelbase COE models. This spring assembly is also available for service use on the two past model long wheelbase COE's (5400 and 5700). The short wheelbase model COE (5100) will retain the nine leaf front spring.

The new spring assembly incorporates eleven leaves as against the former nine giving a higher deflection rate of 780 lb. per in. as compared to the nine leaf spring, which is rated at 640 lb. per in.

In adapting this spring to production on these models, it was necessary to make certain other changes in the front axle assembly so that the assembly could be kept within proper clearance limits.

If the springs are to be installed on older COE models, it will be necessary that the correlated parts also be changed.

New brake hose frame brackets position the frame end of the hose approximately 3/8 in. further out from the frame side rail, toward the brake flange, to provide proper brake hose length for the revised axle position. When the new brackets are installed, it will be necessary to re-form the left and right front brake pipe assemblies so the pipes may be attached to the hoses at the frame brackets.

● Studebaker ●

Brake Squeak 6G-9G; 14A-17A; 2R5

A brake squeak that can be traced to the self-adjusting plug of the forward brake shoe on 6G, 7G, 8G and 9G Champion models and 14A, 15A, 16A and 17A Commander models and 2R5 series truck models, can be eliminated by the use of a Damper Spring, Part No. 527253. The spring is inserted between the self-adjusting plug and the web of the brake shoe at all four wheels. This change was incorporated in production on all passenger cars and 2R5 trucks beginning approximately October 1, 1949.

Engine Cylinder Block for 9G, 2R5, 2R10, 2R15

An engine cylinder block, Part No. 524824, is now available for use in either 9G Champion or 2R5, 2R10, and 2R15 truck models. The oil filler pipe holes have been plugged so that the proper filler pipe location can be selected depending upon whether the cylinder block is to be used in a passenger car or truck. The oil filler pipe is not included with the cylinder block.

If the cylinder block is to be used on a 2R5, 2R10, or 2R15 truck model, order Filler Pipe Part No. 195978 and install in the rear filler pipe hole.

● IHC ●

Tire to Spring Clearance

When 9.00x20-10-ply or 9.00x20-12-ply tires are used on the L-175 with standard single reduction or regular two-speed rear axle, there is 3/4-in. clearance between the tire and the rear spring clips. This should be ample clearance for most highway operations. Where additional clearance is necessary, 1-in.-tire-to-spring clearance can be obtained by removing the rear spring clip bolt, nut and spacer and bending clip ends over spring.

Replacement Valve Guides

GRD, BLD, BD, RED, RD Engines—Pre-reamed heat treated valve guides .002 oversize on the O.D. have replaced the non-reamed valve guides for service.

When making installation of pre-reamed valve guides it is recommended the outer diameter of the guide be lubricated with a thin film of a mixture of white lead and motor oil. This will prevent scoring of the parts and permit easier installation.

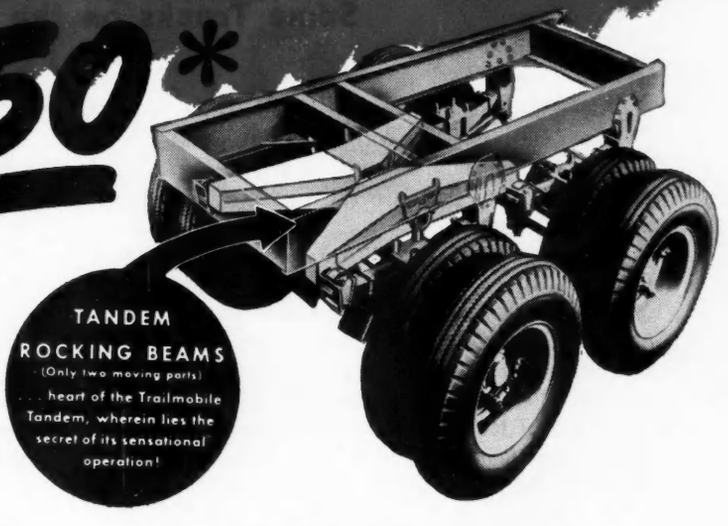
On GRD engines press the valve guides in from the top of cylinder block. On BLD, BD, RED and RD engines press the valve guides in from valve spring side of cylinder head. A 1 1/16-in. high sleeve should be placed over guide when making installation to provide a positive stop when correct position is reached.

Pre-Reamed Camshaft Bushings

To eliminate line reaming of service camshaft bushings on SD, FAB, FAC, BLD, BD, FBB-361, FBB-401, FBC, RED and RD engines, pre-reamed camshaft bushings are now available for service. The pre-reamed bushings should be used in sets and not intermixed with the non-reamed bushings. After stock of the old non-reamed bushings is exhausted only the new pre-reamed bushings will be supplied for service.

Operating instructions and list of parts for the SE-1724 camshaft bushing remover and replacer tool set.

Trailmobile Tandems Cut Overhaul Cost to $59.50*


TANDEM
ROCKING BEAMS
(Only two moving parts)
. . . heart of the Trailmobile Tandem, wherein lies the secret of its sensational operation!

*Maximum cost of $59.50 for reshafting and rebushing the only two wearing parts of the tandem unit.

Here's a way to cut your tandem repair bills hundreds of dollars! A way to keep your trucks rolling . . . making money . . . instead of in the shop *costing* you money! For now you can completely overhaul your Trailmobile Tandem for the amazing low price of $59.50!

Here's why! Trailmobile's advanced engineering has designed a tandem unit with only *two* moving parts! The *maximum* cost for reshafting and rebushing these two wearing parts is only $59.50!

In addition, this simple mechanism means low lubrication costs. You lubricate at only two points. You get constantly equalized braking . . . with brake chatter eliminated . . . maximum tire mileage with no scuffing or cupping! And the entire tandem mechanism is guaranteed for one full year!

It will pay you to check into the Trailmobile Tandem. It will pay you big money in new operating efficiency, low overhaul costs—most "time-on-road", less "time-in-shop". It all adds up to this: Trailmobile Tandems give you *more* working and money-saving advantages than *any other* tandem on the market today! Write now for complete information!

CONVERT NOW TO TRAILMOBILE TANDEMS ON YOUR TRAILERS!

- **More Than 50% Extra Pay Load by Converting Single Axle Trailer to Trailmobile Tandem!**
- **Many, Many Trailmobile Tandems a Month Go Under Trailers of Other Makes!**
- **Any Trailmobile Sales and Service Headquarters Can Convert Your Trailer to a Trailmobile Tandem in Mere Hours, at *Low Cost!***

Ask your nearby Trailmobile representative to show you the complete specifications and blueprints for changing over your equipment, regardless of make, to the use of Trailmobile Tandems. He'll explain, too, why more cost-conscious operators every day are switching to Trailmobile Tandem Trailers for maximum efficiency in hauling greater pay loads at minimum cost!

THE TRAILMOBILE COMPANY
Cincinnati 9, Ohio • Berkeley 2, California

MAIL THIS COUPON NOW!

THE TRAILMOBILE COMPANY—31st and Robertson Avenue, Cincinnati 9, Ohio.
I am very interested in Trailmobile's amazing new tandems. Please send me complete descriptive information.
Name.....
Company.....
Business Address.....
City.....State.....
My Position.....

The OVERLOAD

EDITORIAL COMMENT

Some Trucks on the Wrong Road!

FROM an unusually active month since last we came face to face with our "Overload" typewriter, six entirely separate but closely related events stand out in sharp relief. Here they are in approximate sequence.

Item 1. At the Third Annual Highway Users Congress, Chester Moore, able chief of the Central Motor Freight Assn., read the report of the Conference's Highway Barriers Committee. Suddenly he paused, rapped with his gavel, secured absolute silence. Then he read slowly: "We recommend that the National Highway Users Conference vigorously and unqualifiedly condemn the practice of violations of state highway weight by anyone, and pledge its active cooperation . . . in all efforts toward elimination of this abuse where it exists." Then came the familiar qualifying clause that such action is not to be construed as an endorsement of existing laws. A moment later 100 per cent of those in attendance "signified by saying Aye."*

Item 2. A top executive of a large insurance company specializing in highway carrier underwriting told us privately that the truck industry's biggest problem had nothing to do with insurance or accidents or all the other things one would suspect would be on his mind. Instead, he named law enforcement. "For heaven's sake," he said, "get them to keep their skirts clean before they begin right over again asking for higher weights."

Item. 3. A top executive of a private carrier fleet told us the most important item on his agenda these days was legislation. With fine engineering, maintenance and operating staffs they could keep the wheels rolling, but the change of a decimal point in a law could wipe out a large part of his fleet.

Item 4. On May 1, Col. McCormick's bitter, fighting *Chicago Tribune* published the names of 32 truck fleet operators who had 100 or more highway violations—one of them 973 in a single year.

Item 5. In the May issue of *Harper's Magazine*, Public Relations Expert Herbert Askwith attacks with personal venom, and an amazing array of statistics, the railroads' foolish, crazy quilt pattern of ever-ascending tariff schedules and the resulting drop in both passenger and freight traffic. The article's headline, "Railroads on the Wrong Track," quite frankly gave us the idea for the heading above.

Item 6. "The Rape of Our Roads," just out as we go to press, in the June *Readers Digest*. Despite author Brownwell's obviously biased and unsupported prejudice, and despite the considered judgment of the *Digest* editors who placed it 32nd on their list of 35 feature articles, it is a piece that will penetrate deeply in the minds of many taxpayers. To the author's credit is his expose of the crazy-quilt highway barrier problem.

There we have them. Six events widely separated by circumstances, by geographical location, even by industry. But don't they all add up to make us join in a common chant: Damn the guys—and they are relatively few—that make us admit before Congress, the ICC, the state legislatures and, worst of all, before good old John Q. Public himself that at least some skirts are far from clean.

We can win the arguments hands down on the fallacies of highway damage, on subsidies, on the utter ridiculousness of most of the railroad arguments. We can bring tears to the eyes of the hardest state legislator when we explain the difficulties of weaving a legal load through the intricate maze of state highway barriers.

But the job is a whole lot tougher as long as some trucks still travel the wrong road. We're still hoping for the day—and may it come before it's too late—when the word "overload" will be banished from the American scene except as the copyrighted property of this particular feature of CCJ.

* * *

P.S.—Westinghouse, Westinghouse, whose house is which?

For a "brake" on "Phelps Fantasy" see page 101.

Bart Rawson
Editor

*CCJ readers will remember the similar resolution passed by the American Trucking Assns. in Boston last fall, and the resolutions by some 40 of the 48 state associations which preceded it.

CCJ REPORTS

on News of the Industry

The Month's Highlights

On a national scale during the past month fleet operators were on hand at the National Highway Transportation Congress in Washington (see page 74) at the ATA Spring Meeting in Chicago (see page 60) and at the Tank Truck Carriers Conference also in Chicago (see below). As this issue reaches readers others will be on hand at the SAE Summer Meeting at French Lick battling the problems of wear prevention, noise elimination, tire life and safety, truck leasing, lubricating oils and an array of other subjects on the agenda. Still others, mostly bus men, will be at the meetings of the American Transit Association and Association of Transit Equipment, Mid-Atantic State, in Washington.

Tank Carriers and the Future

At the National Tank Truck Carriers mid-year meeting more than a hundred oil company representatives were on hand by invitation to discuss "The Future of the Tank Truck Industry."

Featured speaker was Lee R. Cowles, traffic manager of the Standard Oil Co. (Ind.), who from the shipper's viewpoint, told the carriers they must strive to become more a part of the oil industry. He recommended that provision be made to meet winter peaks in petroleum hauling by "unrestricted interchange of equipment for use in short hauls at widely separated shipping points."

He admitted that varying state size and weight laws were presently blocking such an arrangement, and added, "This is a legislative problem, and I know that you have been pushing it for many years. It should have continued active handling."

L C. Allman, vice president of the Fruehauf Trailer Co., told the carriers that a large amount of responsibility for the condition of our highways rests with those who build and maintain them, rather than those who use them. He delivered a strong attack, in the language for which he is famous, against those who would restrict further development of the trucking industry through legislation and adverse public opinion.

The entrance of Mack Trucks, Inc., into the battle against adverse propaganda being leveled against the trucking industry, was announced at this meeting by H. W. Dodge, executive vice president of Mack Trucks, Inc.

"In the public interest, in the interest of the trucking industry and in our own interest, we are taking

(TURN TO PAGE 184, PLEASE)

DATES and DOINGS

JUNE 12-16—American Society of Mechanical Engineers (4th Annuel Materials Handling & Exhibit) International Amphitheater, Chicago, Ill.

JUNE 12-16—Fleet Supervisors Training Course, Marshall College, Huntington, W. Va.

JUNE 19-23—American Society of Mechanical Engineers, Hotel Statler, St. Louis, Mo.

JUNE 23-24—Pennsylvania Motor Truck Assn. Annual Meeting, Penn Harris Hotel, Harrisburg, Penna.

JUNE 22-25—Automotive Council of Los Angeles (2nd Annual National Truck, Trailer & Equipment Show) Pan Pacific Auditorium, Los Angeles.

JUNE 26-30—Fleet Supervisors Training Course, University of New Hampshire, Durham, N. H.

JUNE 30-July 2—Maine Truck Owners Assn. annual convention, Rangeley Lakes Hotel, Rangeley, Maine.

JULY 10-14—Fleet Snpervisors Training Course, Northwestern University, Evanston, Ill.

JULY 15—Motor Transportation Assn. of S. C. annual convention, Cleveland Park Hotel, Greenville, S. C.

AUG. 3-5—Michigan Trucking Assn. state roadeo, Grand Rapids, Mich.

AUG. 14-16—Society of Automotive Engineers (West Coast Meeting) Biltmore Hotel, Los Angeles, Calif.

AUG. 19—New Mexico Motor Carriers Assn. truck roadeo, Albuquerque, N. M.

SEPT. 4-6—Mississippi Transport Assn., Inc., Annual Convention, Buena Vista Hotel, Biloxi, Miss.

SEPT. 8-9—Kansas Motor Carriers Assn. annual convention, Broadview Hotel, Wichita, Kansas.

SEPT. 8-9—West Virginia Motor Truck Assn. annual convention, Hotel Waldo, Clarksburg, W. Va.

SEPT. 11-15—Fleet Supervisors Training Course, Penn State College, State College, Pa.

SEPT. 11-15—Fleet Supervisors Training Course, Purdue University, Lafayette, Indiana.

SEPT. 11-12—Wisconsin Motor Carriers Assn., Annual Convention, Lake Lawn Resort, Delevan, Wis.

SEPT. 11-14—American Assn. Motor Vehicle Administration, Annual Meeting, Multononah Hotel, Portland, Ore.

SEPT. 12-14—Society of Automotive Engineers, Hotel Schroeder, Milwaukee, Wis.

SEPT. 13-14—Tennessee Motor Transport Assn., Annual Convention, Andrew Jackson Hotel, Nashville, Tenn.

SEPT. 13-15—National Assn. Motor Bus Operators, annual meeting, Drake Hotel, Chicago, Ill.

SEPT. 14-16—Virginia Highway Users Assn., Annual Convention, Hotel Chamberlin, Old Point Comfort, Va.

SEPT. 15-16—Michigan Trucking Assn., Annual Convention, Park Place Hotel, Traverse City, Mich.

SEPT. 16—Massachusetts Motor Truck Assn., Inc., Annual Convention, Swampscott, Mass., New Ocean House.

SEPT. 18-22—Fleet Supervisors Training Course, Ohio State University, Columbus, Ohio.

SEPT. 25-27—American Transit Assn., 69th annual convention, Biltmore Hotel, Los Angeles, Calif.

SEPT. 25-29—Fleet Supervisors Training Course, University of Kansas (Ext.), Wichita, Kansas.

OCT. 2-6—American Trucking Assn. Annual Meeting, Waldorf-Astoria Hotel, New York.

OCT. 16-18—Society Automotive Engineers (Transport Meeting), Hotel Statler, New York.

DEC. 4-8—Automotive Service Industries Show, Navy Pier, Chicago.

TIMKEN-DETROIT

NEW-DESIGN AXLE SHAFTS

ARE THE STRONGEST EVER MADE!

STRONG POINTS:

1 Exactly the right steel.
2 New heat-treating formula.
3 New shot-peening process.
4 "Torsion-Flow" integral flange.
5 16 slant-sided splines.
6 Increased root diameter.
7 Splines completely enveloped by side gear.
8 Increased relative shaft body length.
9 Increased relative shaft body diameter.
10 "Taper-Lock" wheel hub assembly.

WRITE FOR DETAILED DESCRIPTIVE LITERATURE

TIMKEN Detroit AXLES
A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted D A Standard
TRADE MARK REGISTERED

PLANTS AT: DETROIT AND JACKSON, MICH. • OSHKOSH, WIS. • UTICA, N. Y. • ASHTABULA AND KENTON, OHIO • NEW CASTLE, PA.

CCJ REPORTS

DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

Reo Re-enters Low-Price Field

Announcement of a Reo Speedwagon at a new low price is more than just addition of another model to the line. Actually, it is a bold and determined move to re-establish Reo in a more dominant position in the truck field. Priced at $1,631 list at factory with cab and 6.50 duals, the model E-19 Speedwagon is rated at 14,500 lbs. g.v.w. and is competitive with all major builders in that weight class. By offering the vehicle in the popular price bracket Reo is hoping to attract dealers so that it can greatly expand its representation throughout the country for all of its lines. The company is shooting for a dealer in every important trading center in the country and is offering the new Speedwagon to accomplish that end. Price of the Speedwagon when equipped with booster brakes, helper springs and 7.50 duals now is about $250 cheaper than the E-19 model. The Speedwagon now will be the only Reo truck carrying the Gold Crown engine which was used successfully by the company for many years. All other models now are equipped with the Gold Comet overhead valve engine which Reo introduced last year.

Reo also has just introduced a new model, E-20, which has a g.v.w. of 16,000 lb. as a truck and 26,500 lb. as a tractor. It is powered by a new 255 cu.-in. Gold Comet engine, the third member of the new Reo overhead-valve engine series.

Michigan Revises Minimum Tariffs

The Michigan Public Service Commission has revised the minimum rate schedule on truck rates including the enumerating and classifying of more than 100,000 freight items. The underlying principle in the new rate structure is that large or small lot shipments should pay their own share of the cost regardless of distance. The rates attempt to remove inequities under the old system in which large shipments subsidized small shipments and long haul loads were subsidized by the short haul shipments. The new order applies to intrastate shipments only in the State's lower peninsula and affects approximately 900 Michigan carriers.

Truck Steam Engines Returning?

The perennial dark horse in the engine field—the steam engine—is ready to make a serious bid as a heavy contender in the light and middle weight commercial vehicle class. It is being whispered that an eastern fleet of 70-odd trucks has a 2-cylinder engine in daily service for about a year and a half with results approaching the sensational. Engine details are highly secret, but it is said that most, if not all, of the objections to steam engines have been engineered out; starting, for example, is almost instantaneous. Fleet operator's enthusiasm is based on a $1,500 saving in fuel during its first year of operation; maintenance of 22-part ensemble almost nil; adaptability to any chassis. Other claims sound familiar to steam engine enthusiasts: Smooth, rapid acceleration; smooth, silent operation; compactness and light weight.

Ford Market Predictions Come True

When Ford sales executives three years ago predicted that the industry would sell an average of 1.2 million trucks a year from 1947 through 1950 there were some raised eyebrows. Sales figures for the past three years, however, indicate that the company was on solid ground since sales totaled 3.7 million and the best guess for 1950 now is that sales may exceed last year's total of 1,124 million. Ford says the demand for trucks has doubled that of prewar years and that the trend still is going strong. The company says that about half the 8 million trucks in use are more than 8 years old with most of them scheduled for replacement within the next 7 to 8 years, indicating a near term potential market of about 4 million units. With about half of 1949 sales accounting for new truck population and half to replace scrapped units, Ford estimates that new demand above replacement requirements now is running between 300,000 and 500,000 units a year. Adding to that figure the normal replacement demand the company comes up with a basic requirement for 900,000 to 1 million new trucks a year for the next 7 or 8 years, compared with about half that number for the immediate prewar years.

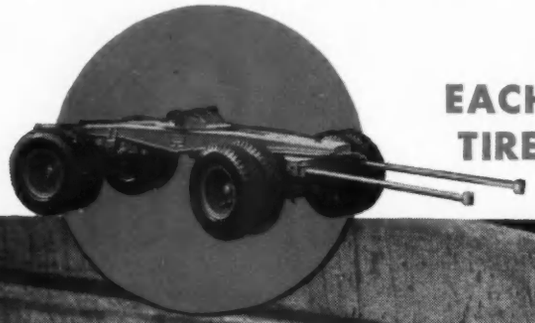
Reo Automatic Transmission In Mid-30's

Passenger car builders sometimes are inclined to quibble a bit about who was first with the automatic transmission. However, the record shows that Reo, now a truck manufacturer exclusively in the automotive line, was the first to offer an automatic drive dating back to the mid-1930's. The device was put on the Reo passenger car which was abandoned in 1936.

Tilt Cab on Light Whites

White Motor Co. soon will extend its tilt cab design to a new series of light models. The company says that acceptance of the cab on larger models has

(TURN TO PAGE 150, PLEASE)



EACH TIRE 250,000 MILES!

. . . because HOOBLER UNDERCARRIAGE helps tires roll farther

THE tires pictured above have set a record that's hard to believe—250,000 miles each . . . and no retreads! And the Hoobler Undercarriage mounted on the trailer made that record possible.

The Hoobler-equipped tanker went into service over three years ago. It's a "king-size" job, hauls 6200 gallons of fuel per load—1700 *more* than a conventional tandem. It averages about 16 hours service per day, on runs of approximately 100 miles per trip. And maintenance cost has been practically nil . . . *and no leakage!*

Here's how the Hoobler Undercarriage increases tire mileage and cuts operating costs, too . . .

This Undercarriage permits the trailer to follow through behind the tractor . . . to ease around the tightest corners or travel straightaways with practically no tire scuffing. Moreover, because flexible, multiple support absorbs practically all road bumps, destructive shocks to tires are cut to a minimum.

Hoobler Undercarriage does even more to improve operations. Its "outrigger" action provides greater stability on curves. There's minimum load shifting—everything from eggs to steel rides safer, easier, faster! And highly important, Hoobler 9-ft. axle spacing generally permits greater payloads.

The Hoobler Undercarriage is simple in design and construction, quickly inspected, easily serviced. It's used on tankers, high-sides, vans or flat tops (28 feet and over). Find out how it can help you make savings mile after mile, day after day. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

Builder of The Hoobler Undercarriage

CCJ REPORTS

WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

Rails Ask ICC Probe

Ninety of the nation's railroads have taken another crack at inter-city long-haul trucking. They have asked the Interstate Commerce Commission to institute an overall investigation of long-haul trucking to determine its economic and other effects in the light of the national transportation policy. The railroads also asked the ICC to delay action on more than 40 long-haul trucking applications until the general investigation is completed.

As this issue went to the printers it was anybody's guess as to whether the ICC would approve the rail request for an investigation that would be complex and time-consuming. Significant fact is that ICC has been criticized by some members of Congress for "careless" granting of truck certificates.

The rail petition is similar to an earlier one filed by the grain trade, which asked for an investigation based on the assumption that rail rates would rise on grain and other bulk products if other traffic is lost to long-haul truckers.

In the petition, the railroads made much of their oft-repeated claim that only the rails offer complete transportation and that trucks skim off only the most profitable business. It also suggested that it should be determined whether or not highway facilities are adequate to accommodate an increase in highway traffic volume by heavy vehicles and the effect of such increase upon highways.

Initial reaction from the trucking industry, represented by ATA, appeared to welcome such an investigation as "an opportunity to show the economic benefits to shippers and the American public generally that derive from long-haul truck transportation. . . ."

"Muscle Spikes" Gage Alertness

Development of a new gadget by the Navy may someday result in a substantial lessening of accidents caused by overexertion, strain, worry or just plain monotony. The device is a portable "alertness indicator," which signals dangerous or undesirable lethargy in persons performing monotonous routine tasks of long duration. Designed by Tufts College, under Navy contract, the device has been tested in motor vehicles and aircraft. The device has electronic pickups, strapped to the head of a person performing a task, which relay "muscle spikes" from facial muscles in the region of the forehead to the indicator.

According to Tufts College researchers, some important information has been obtained from tests of a truck driver, operating a large tractor-trailer combination from New York to Boston.

During this run, the indicator was placed on the seat between driver and observer. Readings were taken every five minutes over a period of 11 hours actual driving time.

Results showed that several situations gave rise to a relatively high degree of alertness, while other situations caused leveling off or a substantial drop in alertness.

In terms of electrical output from the driver, the following tabulated data on the driving conditions and accompanying alertness indicator show the differences between easy and difficult driving conditions:

Driving Condition	*Electrical Output from Forehead of Driver*
Turning trailer around	10
Heavy traffic	9.1
Sharp curves	9
Sudden stop	9
Sudden speeding up	8
Shifting gears	7.2
Passing vehicles	7.2
Driving at high speeds	7
Rain, snow	6
Intersections	6
Easy driving along straightaway	3.5
Good driving conditions	3.5
Stopping and waiting at traffic lights	2
During ferry trip	1.2

(Higher numbers indicate greater alertness)

These data indicate great differences in energy demands on the driver while driving under various conditions of traffic and weather.

The data obtained from the various tests indicate that with the use of proper warning signal, which is easily attached to the alertness indicator, the operator performing a task will know when he is becoming tired or dangerously unalert.

Future plans call for reducing the size of the unit to one cubic foot. The present indicator is about double that size.

Hope for Tax Repeal Dim

High-ranking congressional leaders are now quietly passing the word to their rank and file: Don't make any bets on lower excise taxes this year.

The growing suspicion in recent weeks that industry many not—after all the hullabaloo—receive any relief this year from war-time excises was sharpened the other day when a key member of the tax-writing Senate Finance Committee declared that it would be "impossible" for the Senate to act if the House had not completed action on the tax bill by June 1.

Chances are increasingly dim at this time for tax reduction. A number of congressmen secretly feel that they can "get off the hook" with the voters if they pass a tax-reduction bill and then adjourn, thus passing the ball to President Truman who is almost certain

(TURN TO PAGE 170, PLEASE)

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Another Crescent Innovation!

CRESCENT-WIRY JOE MAROON PLASTIC CABLES

CRESCENT LEADS AGAIN! *Now,* the famous Crescent-Wiry Joe Maroon Cables are *plastic* to make them even better than ever before!

These advantages of plastic are universally established:

- **PLASTIC** is impervious to oil, water, grease, heat, abrasion, *and is highly resistant to acid.*
- **PLASTIC** is extremely flexible.
- **PLASTIC** *does not support flame.*
- **PLASTIC** is modern.

Add these features to the already outstanding list of Crescent-Wiry Joe Maroon Cable features and you have the *new* CRESCENT-WIRY JOE

MAROON PLASTIC CABLES!

√ *Check the wire on every job!*

WHEN NEXT IN OUR NEIGHBORHOOD, DROP IN—SEE HOW CRESCENT-WIRY JOE AUTOMOTIVE CABLE IS MADE FROM COPPER TO FINISHED PRODUCT IN ONE PLANT UNDER ONE ROOF

Brake Mechanic: "I hear you got into a rip roaring fight with your wife. How did it turn out?"

Carburetor Specialist: "She came to me on her hands and knees."

Brake Mechanic: "What did she say?"

Carburetor Specialist: "Get out from under that bed, you coward."

CCJ

The Safety Director for a large motor freight carrier had worried himself to the brink of suicide. Every year during the spring thaw and the rainy season he had to face a major crisis. Road driver after road driver would crack-up his company's equipment on a particularly treacherous stretch of highway approaching the river. High water regularly made the road slippery and dangerous.

At last, however, he solved his problem. He erected a signboard and on it he had painted in bright, red letters: "Take notice—When this sign is out of sight, the highway is dangerous at this point."

CCJ

Tipsy Auto Mechanic: "Gimme a bottle of beer."

Bartender: "You're too drunk! I can't serve you any beer."

Tipsy Auto Mechanic: "Okay—make it ale."

CCJ

The Safety Director was telling one of his friends about the muscle-building course he was taking. "I've been taking this course two years. Every week the mailman brings me heavier weights and bigger equipment."

"But you don't look as though you have any more muscles than you did before," his friend commented.

"I know," replied the Safety Director, "but you just oughta see my mailman!"

CCJ

Fleet Dispatcher: "I hear you and Lucy had a falling out last night. What happened?"

Fleet Inspector: "Oh, nothing much. We were sitting on the couch. Me on one end and she on the other when she started moving closer to my end."

LAUGH IT OFF

Fleet Dispatcher: "Yes, what happened?"

Fleet Inspector: "Well, she put her arm around me and started hugging and kissing me . . ."

Fleet Dispatcher: "Yes, yes, then what happened?"

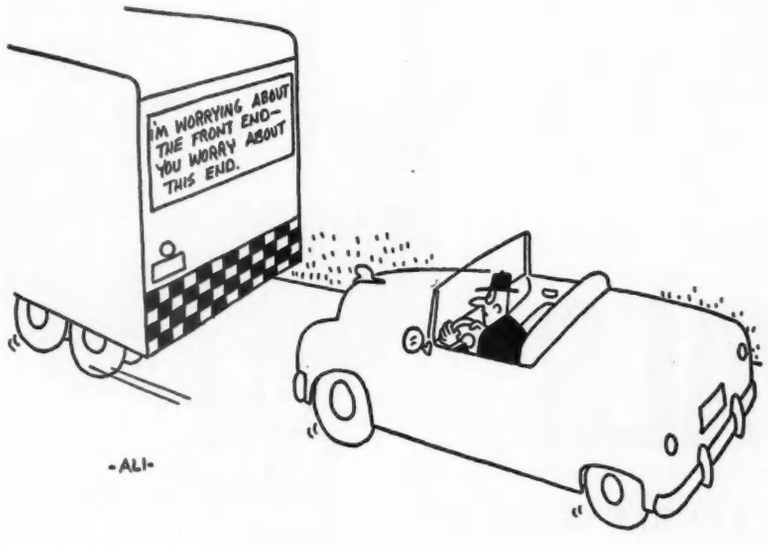
Fleet Inspector: "She said something sweet in my ear, and then put out the lights."

Dispatcher: "Go on, go on and what did you do?"

Inspector: "What did I do? I turned them back on again. How in hell can I read in the dark?"

CCJ

I NEVER GET WET WHEN I GO SWIMMIN'
'CAUSE I'M MUCH TOO BUSY CHASIN'
WIMMIN!



-ALI-

Maintenance Superintendent (to cook): "My mother-in-law is coming tomorrow for a long visit. I've made out a list of her favorite dishes for you."

Cook: "Yes, sir."

Maintenance Supt.: "Well, the first time you serve one of them, you're fired!"

CCJ

The trouble-shooting road mechanic had been out to repair a breakdown on a backwoods section of Georgia highway, and on the return trip he became lost in the unfamiliar country. Stopping his car near a roadside shack, he called to and old woman sitting on the porch, "How far is it to the nearest town? I'm lost."

"Wal, mister, I'll tell You'ns. Pa figgers hit's about ten miles thar and about twelve miles back," she answered. "Which is account of him walkin' straighter goin' than comin'."

CCJ

AUTO PARTS CLERK: "Is this hair-grower you advertise any good?"

DRUG STORE CLERK: "Confidentially, we sell it at cost because of the comb and brush business it brings us."

CCJ

Family Doctor: "I don't like your heart action. But of course you've had some previous trouble with angina pectoris."

Young Bus Driver: "Yes, Doctor, I have. But you haven't got her name right."

CCJ

THERE WAS A TRUCK DRIVER NAMED SID,
WHO KISSED HIS GAL ON THE EYELID;
SHE SAID TO THE LAD,
"YOUR AIM IS SO BAD
YOU SHOULD PRACTICE AWHILE." SO HE DID!

(Resume Work)

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FLYING TRIPS... UP AND DOWN THE WHOLE WEST COAST!

That's what these U. S. Royal Raymasters stand up to, month after month. This equipment averages 500,000 miles a year, mostly at high speeds. They've got tough loads to haul and tougher schedules to meet. But with U. S. Royal Raymasters and the U. S. Fleet Service, delays are kept to a minimum.

Raymasters are ideal for your long distance highway hauling operations—extra-deep tread for longer mileage ... special tread design for cool running ... deeper anti-skid for safer, quicker stops ... all this plus the cost-cutting preventive tire maintenance plan of the U. S. Fleet Service. Call your U. S. Royal Distributor today.

U.S. ROYALS

U.S. ROYAL TIRES

PRODUCT OF UNITED STATES RUBBER COMPANY

Typical unit and new headquarters of North American Van Lines which is the center of the efficient traffic management system

Coordinating Dispatching into 92 Shipping Zones

By Randall R. Howard
Special CCJ Correspondent

Transcontinental household goods carrier divides system into five intercommunicating areas with "finger-tip" control of vehicle movement, cargo movement and "open" cubage

IT IS THE JOB of L. L. Peterson, General Traffic Manager of North American Van Lines, Inc., to know at any time almost the exact location of each of the 300 to 400 big moving vans that his company normally will have in motion over our national highways. Some of them will be en-route in every state of the union; and often special routings into Canada. Every seven minutes, on an average, a NAVL moving van will be making a scheduled pickup or delivery.

The traffic-management nerve center is the Dispatching Dept. at the headquarters office in Fort Wayne, Ind. Here is the master teletype unit which ties together a national intercommunication system. The company has been operating for over 17 years, but this system is rather new. It was first set up experimentally about two years ago to operate out from Cleveland, Ohio, to New York City and through the New York-New England area. Early in 1947, the teletype operating center was moved to the then comparatively new national headquarters at Fort Wayne; and the system was expanded into the present national hookup.

The teletyped information is supplemented by telegraphed, telephoned, and postal information, which summarizes for all NAVL moving vans

(TURN TO PAGE 50, PLEASE)

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. . . Coordinating Dispatching

Continued from Page 49

North American Van Lines' despatching map showing the main operating centers and territories covered, which are divided into 92 shipping zones

NAVL's despatching office keeps close track of all vehicles. Teletypewriters in background send and receive data on available and moving cargoes

their advance bookings, loadings, movements, available extra cubic-footage of space while enroute, unloadings, and their schedules five to six days ahead of time. This takes the memory work out of dispatching and makes it most efficient.

Five Major Areas, 92 Zones

ALL of the incoming information flow to the Fort Wayne Dispatching Dept. is condensed into a master teletype tape, which is duplicated in the other four national area offices for the NAVL system. This five-area national system is further divided into 92 smaller shipping zones.

Formerly, for some years, the NAVL headquarters office was in Cleveland. But with increase of tonnage it was decided that Fort Wayne would be a more favorable national traffic management center. An influencing factor was its location directly on the trans-continental east-west Lincoln Highway. Also considered was the need of additional headquarters ground area and housing facilities for office, maintenance shop and supplies storage.

Proving the accuracy of the assumed expansion needs, the company reports that during the three-year period since they moved to Fort Wayne, their van tonnage has expanded by more than four times, now giving them a top position among the nation's largest moving-van companies.

Resulting from this rapid tonnage increase, the comparatively new NAVL headquarters building, with 5000 sq ft of floor space and about 90 employees, is so overcrowded that there are plans for immediate expansion construction. The headquarters fleet servicing shop, with ground dimensions of 60x120 ft, also needs expansion. The headquarters grounds, with an area of 12 acres, are located just outside the east city limits of Fort Wayne.

In the Dispatching Dept., the master teletype machine is supplemented by an IBM card setup for filing, tabulating and quick reference, in the finger-tip control of the 300 to 400 moving vans in coast-to-coast operations, and involving nearly 700 widely distributed NAVL agents.

Manual Outlines Procedures

THE reporting procedures and responsibilities of these agents are set forth in the official company Agency Manual. "Our agent," it is stated, "is considered the most vital part of NAVL. He supplies the sales by which we are able to conduct a nation-wide long-distance moving service. He further supplies the personal contact between NAVL, as the carrier, and his customers, the shippers."

When an agent makes contact with a customer, he is advised to carry, as supplies: Estimate order sheet for service; order for transit insurance; mileage guide; applicable tariff; agents roster; and current advertising material. When he secures an order for NAVL shipper service, it is promptly dispatched by letter, air mail or telegram, depending on urgency, to his area office. This initial report will include shipper's name, origin of shipment, pickup dates optional and desired, and any special pickup or delivery instructions. When this order for service is received by the NAVL area office, it is assigned a contract number which will follow through on all other transactions.

After shipment is loaded, insurance taken care of, prepayment or collection arrangements made, certified weight ticket secured and the shipment is enroute, the shipping agent will notify the NAVL destination agent.

The Manual states that "constant effort is being made by our traffic department to improve the quality of our driver personnel." The agent who assigns the driver is advised: "When a driver does a good job, tell our dispatcher or traffic department; and when he falls down, let us know his failure. In this way we can better service every shipment."

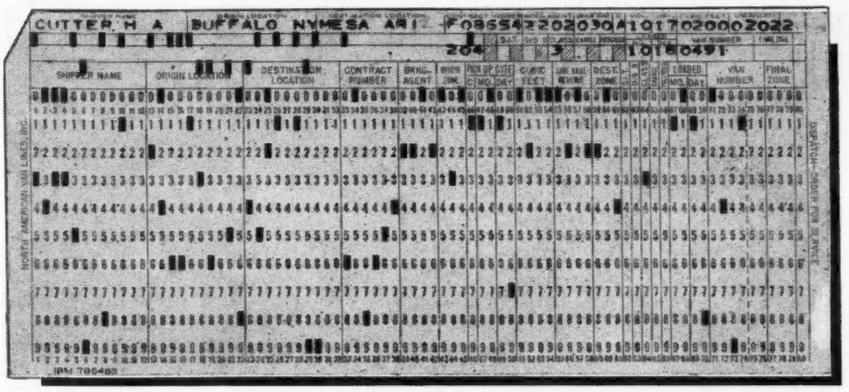
The agent also is reminded that, "when you operate your equipment in NAVL service, the equipment and driver is in complete and entire custody of NAVL, the carrier. . . .

"The use of your equipment in NAVL service is always determined by the dispatching office who has jurisdiction of it. Such equipment is under full instructions from that department. . . .

"It is mandatory that an Agents Hauling Contract, properly executed, accompanies your vehicle at all times and that another copy remain in your files. . . .

"Your driver must be instructed to the point where he will fully understand that you are placing him under the full jurisdiction of our dispatching offices until he is released at his

(TURN TO PAGE 126, PLEASE)


CUTTER H A BUFFALO NYMESA ARI F08554220209041017020002022

This IBM card record provides quick means of reference to determine shipper's name, origin location, destination location, date and other data

Files at left contain IBM cards shown above. Cards are punched on machine in background from data relayed by NAVL's 700 field representatives

REGISTER OF UNSHIPPED BUSINESS

10-14

	KAPPES G	54	MRDN MIS		10	LENIA NH		S	10	8	1203	534	2311	10	13	525							
	HARSH	61	LAKANCE		10	RAYMND NH		S	10	1	10086	850	8811	10	13	2114	1						
	TERRILL C	33	GREENVLE		11	PROVIDENCE		S	10	14	1007	545	1127	10	14	259							
	HAMPTON B	404	SANDIEGOCAL		11	NEWPRT RI		S	10	13	4295	432	4284	10	13	592							
	CARLISLE H	61	STCHAS ILL		11	SPRGFLD MS		S	10	13	3506	633	8211	10	13	2114	1						
	ENGLISH G	21	SCRANTON		11	EVERETT		S	10	13	2007	573	8211	10	13	2427	4						
	GARRICH CUST	61	STCHAS ILL		11	CRANSTON CON		S	10	13	1015	1200	8211	10	13	2120	2						
	MEADY A L	8	OKLACITYOKL		11	BURGTN RI	9	S	10	13	1434	537	8210	10	13	2923	2						
	HIGH ART	43	COVINGTON		11	WAKDEN CON		S	10	6	1406	845	9501	10	6	2934	8						
	HINSTEAD E	21	CORONA		11	TAUNTON		S	10	3	1337	568	4231	10	6	2934	8						
	GOULD L	21	MT KISCO		11	ROYBURY		S	10	10	1337	595	0834	10	13	2934	8						
	HALLS P	21	HAMARONECK		11	STONEHAM		S	10	13	1307	568	2301	10	13	2934	8						
	KUTELIS A	21	NYC NY		11	NAUGATTCK		S	10	1	1337	577	9934	10	13	2934	8						
	GARRICH CUST	61	STCHAS ILL		11	GLENWOOD CON		S	10	6	4006	913	4211	7	10	03326	2						
	CHIVAROLI	61	STCHAS ILL		11	QUINCY MAS		S	10	6	0005	0335	8211	10	6	03326	2						
	PLOWDEN J	54	HIGHMONTIS		11	WSTPRT CON		S	10	13	0005	561	0231	10	13	525							
	LEPHART R	51	GRFRDSVLE		20	ALBANY		A	10	6	10007	549	8127	10	6	632							
	BAKER H	21	PITTSBRGPA			NYC NY		A	10	6	1456			10	6	2							

There never is any doubt in any of the areas as to the disposition of the cargoes. As reports are received, they are teletyped throughout the system

Location and movement of every van also is relayed to each area. Thus, the branches know which vehicles are available, and if they are fully loaded

EQUIPMENT STATUS REPORT ☐ BY VAN NO ☐ BY ZONE

DATE

INTER ZONE	INTERMEDIATE LOCATION	FINAL ZONE	VAN NUMBER	LOADED MO.	LOADED DAY	DISP. CODE	DISP. AGENT	ORIGIN LOCATION	S.O.V.	PICK UP C	PICK UP NO.	PICK UP DAY	ORIGIN ZONE	CUBIC FEET	LINE HAUL REVENUE	CONTRACT NO.	O/S	S.V.	
			682					GARRISON											
104	ALAMOGORDO		682		9	23	1020	ATTLEBORO	S		9	28	11	700	6607	5568			
103	TELLWIDE		682		9	29	1273	TAHAMUS	S		9	27	20	500	4047	5516			
204	TUSCOH		682		9	30	1179	BRIGHTWTRS	S		9	30	21	750	7007	5249			
			682		10	1P		NYC NY					21						
			682		10	10P		ST LOUIS					72						
			683					NEWTON											
83	TOPEKA		683		10	6E		TOPEKA					83						
			684					GUERIN											
403	PASADENA		684		10	15E		PASADENA					403						
			685					WEIDERGAL											
			685		10	13A		GT FALLS					100						
			686					HINES											
31	SNBRY PA		686		10	14	1139	SGNAW MIC	S		10	12	40	200	3966	8493			
21	KFWDRGNY		686		10	15	2902	DETROIT	A		10	10	40	300	1396	85029			

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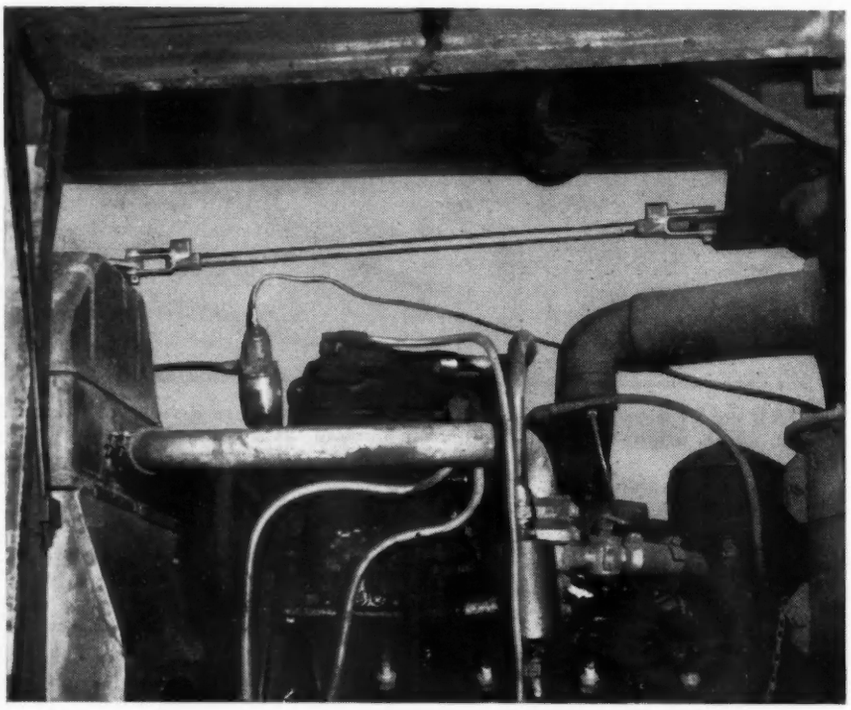


Fig. 1. Original 4-point radiator suspension changed to this 3-point system with the third mount connected by the long rod to the center overhead cross support. This third mount is immediately disconnected by merely lifting the clevis pin

Corrective Campaigns cut BUS MAINTENANCE

Modified radiator suspension, hydraulic gear shift control and other shop-devised mechanical changes and devices, drop road failures and prevent repetitive problems

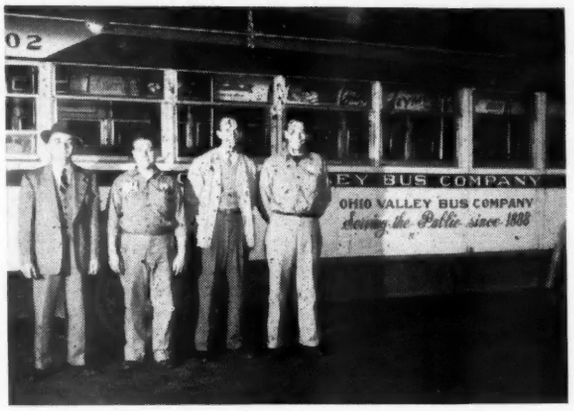
By Max Dach
Superintendent of Maintenannce
Ohio Valley Bus Co., Huntington, W. Va.

YOUR MAINTENANCE divides ifself roughly into two classes: Unit replacement and unit repair. As every maintenance man knows, the first merely involves removing a unit when it is not functioning properly and replacing it with a similar new or rebuilt unit. The other requires repairs to be made on the spot; that is, repairs other than major jobs, which naturally are scheduled in advance.

As a rule, we dislike replacing units when they are not functioning properly. We have several objections to this procedure. First, there is a tendency on the part of the mechanic not to use his head when tracing cause of faulty operation. It is so easy to requisition another part, and let the unit rebuilding mechanics find the trouble. That leads to laziness and sloppy maintenance methods and never makes better mechanics.

Obviously, there are times when replacement is unavoidable to prevent tie-ups. When faced with such a situation, we follow the usual procedure of turning in the faulty part but then follow it up to find out what the unit rebuilding department discovered to

Fig. 2. An improved design clevis assembly with a U-shaped steel strip brazed directly to the shank of the clevis yoke and spring secured with a round head screw and nut. Reworking of this assembly cost about 75 cents



Author on the extreme left is shown with three of his five supervisors. Left to right from author is Harold Spears, W. E. McMillian and Neil Buckmaster. Supervisors not shown are Maywood Saunders and Thornton Fisher, Jr.

be wrong. Then we determine if the trouble is correctible to prevent its recurrence. This is the key to our general maintenance practices.

When any particularly annoying mechanical trouble is corrected, we make up a "campaign sheet," and set out to prevent its occurrence on all vehicles subject to that trouble. The sheet merely is a typewritten memorandum to the shop foreman to pull, at the next regular 1500- or 15,000-mi inspection, all vehicles of that particular make and model to make the specified correction. Thus, in a matter of weeks, a problem that has been plaguing us dissappears.

3-Point Radiator Suspension

SOME of these campaigns saved us a lot of grief and appreciably cut maintenance costs. A good example is our radiator suspension campaign.

On several occasions we had to pull out and repair leaking radiators on one particular make and model of bus. The leaks were the result of fractures in the radiator in the vicinity of the suspension points or mounts. On these particular vehicles the radiator was mounted at four points. With this type of suspension, any distortion of the bus body resulted in a similar distortion or twisting of the radiator. Road shocks causing body deflections, were also transmitted directed to the radiator. It was reasoned that this suspension was much too rigid.

The solution to this problem was obvious: Design a mounting which would prevent undue strain on the radiator caused by body distortion. A three-point suspension was adopted.

The original two top mounting brackets on the radiator were removed. A bracket, which was adapted to join with a clevis yoke and pin, was brazed to the top of the radiator. A similar bracket was also secured to an overhead, engine cross support located in the center of the engine compartment. A rod with a specially designed clevis yoke and pin assembly on either end, joined the two brackets. This then formed the third point of suspension. The other two were the two lower rubber mounts, supporting the bottom of the radiator.

From Fig. 1 it is easy to see that the long connecting rod joining the radiator with the overhead cross support allows freedom for the independent movement of the radiator, yet affords sufficient rigidity. It also is to be noted that by merely lifting the

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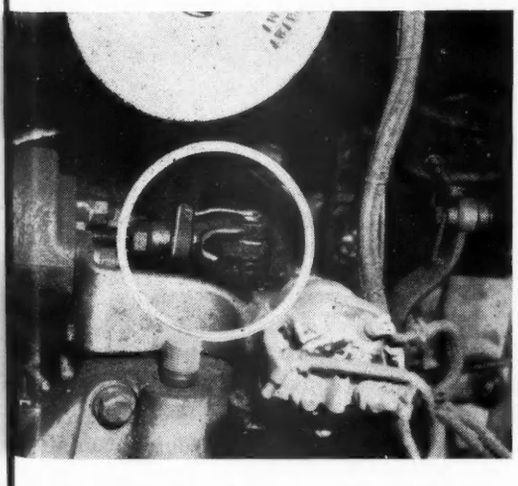
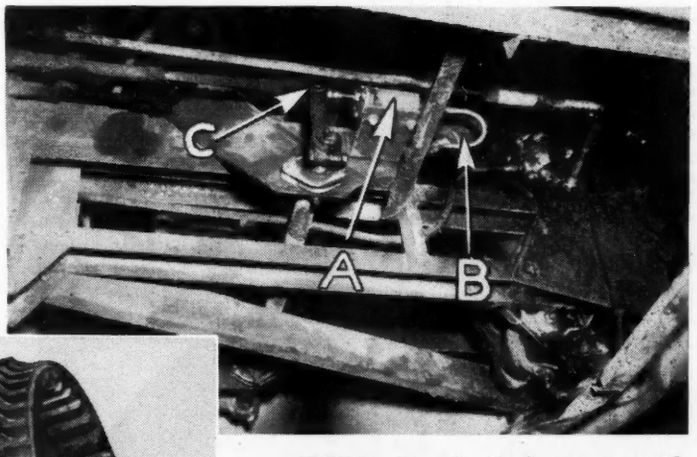
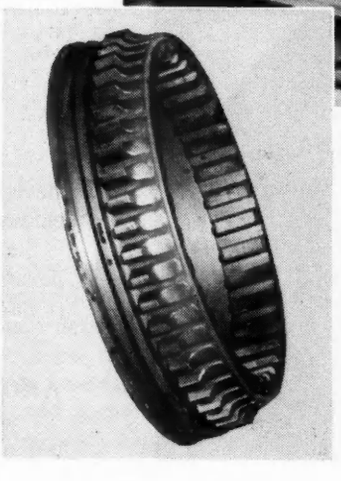


Fig. 3. Air-operated shift cylinder connected to the shift lever on an automatic transmission unit with one of the first modified clevis assemblies. Spring tension retains the clevis pin in the clevis yoke, as shown in circle



ABOVE. Fig. 4. Dash pot assembly consisting of the power cylinder A, connected to tank B, by flexible hose and check valve. Piston rod contacts shift crank arm C, and compels the operator to shift into reverse slowly, permitting a reduction in engine speed



Left. Fig. 5. The excessive tooth wear on this gear, removed from an automatic transmission unit, was caused by the clashing of gears when the driver shifted from forward to reverse without waiting for the necessary reduction of engine speed

. . . Corrective Campaigns Cut Bus Maintenance

Continued from Page 53

FORM 158-1 OHIO VALLEY BUS COMPANY

1500 MILE INSPECTION

PROCEDURE - 1

DATE _____ BUS NUMBERS

NAME

1. GREASE
2. DIFF. - TRANS. - TIGHTEN NUTS - LEAKS
3. AIR TANKS DRAIN - REPORT EXCESSIVE OIL
4. AIR CLEANER - ENGINE UNDER BUS
5. UNIVERSALS - DRIVESHAFT - NUTS BOLTS
6. DRAG LINK - TIE-ROD - OBSERVE TOE-IN
7. SPRINGS - NUTS TIGHTEN
8. CLEVISES - CONTROL RODS OIL - INSPECT
9. SHOCK ABSORBER ARMS
10. BRAKE LINING LOW - REPORT
11. SLACK ADJUSTER - ADJUST - REPAIR B.O.
12. STEERING - DROP ARM - MOUNTING
13. AXLE STUD - NUTS
14. WHEEL NUTS
15. RADIATOR CLEAN
16. RADIATOR OIL - ONE PINT
17. OIL CHANGE - SEE CHECK MARK
18. SWEEP BUS
19. WIPE EXCESS GREASE FROM BODY
20. DOOR HINGES OIL - CLEAN
21. REFER TO WORK SHEET

YOUR CARD NUMBER, WRITTEN IN BY YOU WILL INDICATE THE WORK PERFORMED

YOUR WRITTEN IN "X" MARK WILL INDICATE THAT YOU REPORTED THE RESPECTIVE ITEM TO YOUR SUPERVISOR FOR FURTHER ATTENTION AND CORRECTION

NOTES

FORM 158-2 OHIO VALLEY BUS COMPANY

1500 MILE INSPECTION

PROCEDURE - 2

DATE _____ BUS NUMBER

NAME

1. FRONT, REAR STEP - FLOORING
2. WINDSHIELD WIPER - BLADE
3. DOOR VALVE - LEAKS OIL
4. DOOR OPERATION - INTERLOCK
5. DOOR ENGINE COMPARTMENT
6. GRAB RAIL - STANCHION - SEATS
7. DRIVER'S SEAT - OPERABLE
8. HEATERS - BLOW-OUT - CLEAN COMPARTMENT
9. HEATER MOTORS - OIL
10. MIRRORS GLASS TIGHT
11. HAND BRAKE RACHET
12. FARE BOX - SEALED GLASS
13. HORN - BUZZER
14. AIR-OIL-TEMPERATURE GENERATOR-GAUGES
15. LIGHTS - DIMMER SWITCH
16. SYRENE - AXE - FIRST AID
17. FRONT - REAR - SIGN CLIPS
18. DESTINATION SIGN BOX - CLEAN
19. BATTERY - WATER - VOLTAGE
20. BRAKES - HD.-------- FT.--------
21. DIRTY CEILING - REPORT

YOUR CARD NUMBER, WRITTEN IN BY YOU, WILL INDICATE THE WORK PERFORMED.

YOUR WRITTEN IN "X" MARK WILL INDICATE THAT YOU REPORTED THE RESPECTIVE ITEM TO YOUR SUPERVISOR FOR FURTHER ATTENTION AND CORRECTION.

NOTES

FORM 158-3 OHIO VALLEY BUS COMPANY

1500 MILE INSPECTION

PROCEDURE - 3

DATE _____ BUS NUMBER

NAME

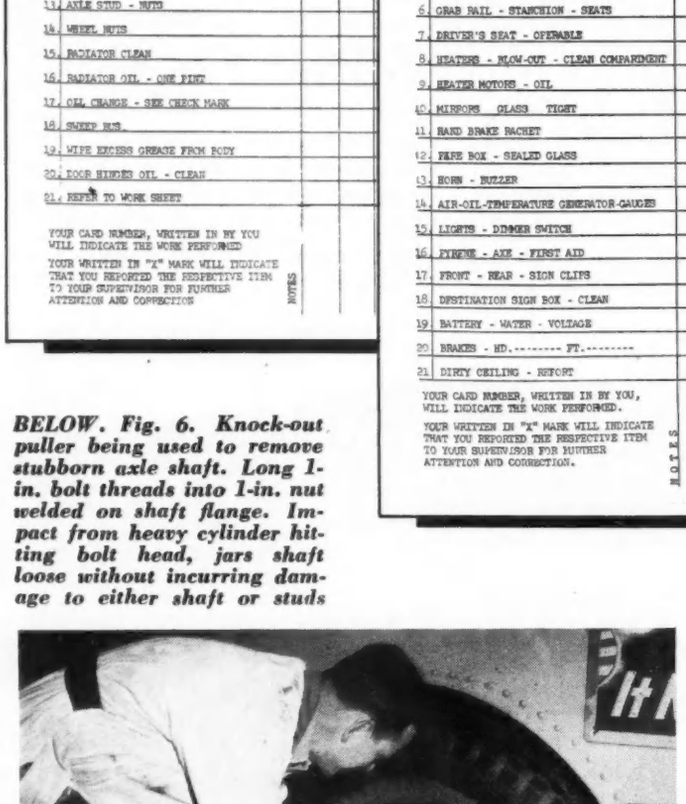
1. MUFFLER - EXHAUST LEAKS
2. WATER LEAKS - ENGINE RUNNING
3. OIL PRESSURE - FRONT - REAR
4. OIL FILTERS - CHANGE
5. OIL - WATER-TUBINGS SHAVE?
6. GAS - FUEL - TUBING - DEFECTIVE?
7. GAS STRAINERS
8. BELTS
9. SPARK PLUGS (SEE CHECK MARK)
10. IGNITION POINTS
11. CARBURETOR - BOLTS - NUTS
12. MANIFOLD - BOLTS - NUTS
13. AIR CLEANER - ENGINE - AIR COMP. REAR
14. ENGINE TRANS. - MOUNTING BOLTS
15. AIR - OIL - SEPARATOR DRAIN
16. CLUTCH CLEARANCE - FACING?
17. GENERATOR - GREASE CUPS
18. GENERATOR - WIRING - INSULATE
19. ENGINE TIMING | SHIFT GOV.
20. EXHAUST ANALYZE | SHIFT CYLD.
21. ENGINE GOVERNOR

YOUR CARD NUMBER, WRITTEN IN BY YOU, WILL INDICATE WORK PERFORMED.

YOUR WRITTEN "X" MARK WILL INDICATE THAT YOU REPORTED THE RESPECTIVE ITEM TO YOUR SUPERVISOR FOR FUTURE ATTENTION AND CORRECTION

NOTES

Fig. 7. Forms used in the 1500-mile inspections. Three men, each assigned one of the forms, handle the entire inspection. Assignments are rotated each week so that all become thoroughly familiar with the inspection and no one man is continually "stuck" with the unpleasant tasks



BELOW. Fig. 6. Knock-out puller being used to remove stubborn axle shaft. Long 1-in. bolt threads into 1-in. nut welded on shaft flange. Impact from heavy cylinder hitting bolt head, jars shaft loose without incurring damage to either shaft or studs

clevis pin, this third mounting is immediately disconnected.

Since these new type mountings have been incorporated, we have had no complaints of leaking radiators.

Modified Clevis Assembly

ANOTHER example of the value of campaigning against the recurrence of annoying problems is our current campaign to correct trouble caused

OHIO VALLEY BUS COMPANY
BUS INSPECTION

Date this inspection_____ Mileage—Present_____ Mi./Gal. Gas_____ Bus Number_____
Date last inspection_____ Mileage—Last Insp._____ Mi./Qt. Oil_____ Make and Model_____
Has Chassis been cleaned?_____ Checked Driver's Report?_____

ROAD TEST—Made by

	Before	After
1. Clutch Action		
2. Gear Shifting		
3. Acceleration		
4. Spark Knock		
5. Governor Action		
6. Steering		
7. Brakes—Foot & Hand		
8. Engine Noises		
9. Transmission Noises		
10. Axle Noises		
11. Body Noises		
12. Gauges Reading OK?		

UNIT CHANGES DUE — List by Office or Foreman — Changed by

1. 2. 3. 4. 5. 6.

Item	Needs Attn.	OK
ELECTRICAL SYSTEM—Ch'd. by		
1 Battery—Sp. Gr. Tighten, ch. Cables		
2. Starter—Current Draw		
3. Starter Relay & Switch		
4. Generator		
5. Voltage Reg.—Settings		
6. Distributor—Points, Cap Cent. Adv., Bearings, Cam		
7. Cam Angle Meter—Read'g		
8. Ignition Wiring—All		
9 Coil—Clean Tower, Test		
10. Condenser—Remove & Test		
11 Timing—Set		
12. Plugs—Clean and Set to Heat Range O.K.?		
13. Horn and Relay		
14. Stop Light		
15. Focus Headlights		
16. Tell-Tale Lights		
17		
ENGINE—Ch'd. by		
1 Compression		
2. Cyl. Heads—Tighten		
3. Manifolds—Tighten		
4. Exh. System—Ck. Leaks		
5. Valves—Ck. & Adj.		
6. Bearings		
7. Timing Gears or Chain		
8. Auxiliary Shafts		
9. Belts and Pulleys		
10. Oil Filter & Connec.		
11. Pump Strainer—Clean		
12. Breather—Clean		
13. Oil Leaks		
14. Oil Pressure		
15. Motor Supports		
16.		
17.		
FUEL SYSTEM—Ch'd. by		
1 Air-Fuel Ratio In / Out	Idle	Speed
2. Air Cleaner—Clean		
3. Fuel Filter—Clean		
4. Fuel Pump—Ck. Press.		
5. Carb. Float Setting		
6. Automatic Choke		
7. Idle & Degasser—Ck.		
8. Carburetor Condition		
9. Governor—Use Tach.		
10. Tank, Mountings, Vent		
11 Leaks—Check System		
12.		
13.		

Item	Needs Attn.	OK
COOLING SYSTEM—Ch'd. by		
1 Pump—Pck. & Bearings		
2 Radiator—Tighten, Check Leaks, Blow Out Dust		
3 Hose—Insp. & Tighten		
4. Heater Valve & Conn.		
5 Temp. Indicator		
6. Fan Clearance & Belts		
7 Shutter Mechanism		
8. Flush Cooling System		
9 Antifreeze		
10.		
11		
AIR SYSTEM—Ch'd. by		
1 Air Compressor		
2. Head & Valve Assy.		
3. Air Intake Cleaner		
4. Air Separator		
5. Air Lines and Connections		
6. Drain Tanks		
7 Time Reg. to Fill Tanks		
8 Governor Setting		
9 Brake Valve & Press.		
10. Brake Relay Valves		
11. Brake Chambers & Con.		
12		
13		
DRIVE UNITS—Ch'd. by		
1 Clutch—For Wear		
2. Clutch—Pedal Adj.		
3. Transmission		
4. Transm. Mtgs.		
5. Shift Lever & Mechanism		
6 Universals		
7. Drive Shaft & Bearings		
8 Speedometer Cable		
9. Differential—Ck. Play		
10. Grease Leaks		
11		
12		
CHASSIS—Ch'd. by		
1 Frame—Ck. All Rivets		
2 Springs (Adj. Grav. Sc		
3 U-Bolts—Tighten		
4 Shackles		
5. Snubber Adj.		
6 Brakes—Wear-Adj.		
7. Brake Cams—Lub.		
8. Hand Brakes—Wear &		
9. " "—Pawl & Cam		
10. King Pins—Jack Up		
11 Steering Arms		
12. Tie Rod		
13 Drag Link		
14. Pitman Arm		
15. Steering Gear		

Item	Needs Attn.	OK
16. Wheel Bearing & Adj.		
17. Rim Condition & Trueness		
18. Wheel & Hub Nuts		
19. Wheel Alignment		
20. Tire Condition & Press.		
21 Control Linkage—Clutch Accel., Brakes, Transm.		
22.		
23		
DOOR MECHANISM—Ch'd. by		
1 Door Engine—Front		
2. Door Engine—Rear		
3. Door Hinges, etc.—Lub.		
4. Door Control Valve		
5 Solenoid Valves & Points		
6. Automatic Treadle		
7 Sensitive Edges		
8. Interlocks		
9. Dash Indicator		
10. Door Speed—2 sec.		
11		
12.		
BODY & FIXTURES—Ch'd. by		
1 Rivets—Ck. Looseness		
2 Roof Condition		
3 Body Dents		
4 Bumpers & Mud Guards		
5 Paint Condition		
6 Interior Cleaning		
7 Floor Covering		
8 Stepwells		
9 Lights—Ceiling		
10. Lights—Stop, Marker, Refl		
11 Buzzer & Pull Cord		
12. Signs—Dest'n & Black		
13 Seats		
14. Stanchions		
15 Sash & Glass		
16. Latches & Reg.—Lub		

REMARKS (Use Back Side for Additional Notes)_____

Time taken for this inspection_____man hours. Days out of servi

Note: Mechanic responsible for each group of items must initial as shown. By approved by foreman. Office or foreman to furnish data at top and units d

FORM NO. 168 — OHIO VALLEY BUS COMPANY
NIGHT INSPECTION SCHEDULE

DATE_____ 194_.

MONDAY	Adjust Brakes - Grease Cams
TUESDAY	Drain Air Tanks
WEDNESDAY	Grease Differential - Transmission
THURSDAY	Adjust Brakes
FRIDAY	Drain Air Tanks

IN ADDITION TO THE ABOVE, INSPECT AND CORRECT EVERY NIGHT:

Clutch - Facing - Bolts - Nuts - Springs - Water - Oil - Gas Leaks - Windshield Wipers - Buzzer - Horn - Generator Charge - Oil Pressure - Door - Lights - Operation - Clutch Pedal Play - Air - Fan Belts - Wheel Nuts - Studs - Bow Damage - Motor Missing.

IF DEFECT CAN'T BE CORRECTED ON THE SERVICE LINE, REPORT IT TO THE MAN IN CHARGE.

101	116	160	202	251	301	317	333	401	1208
102	117	161	203	252	302	318	350	402	1209
103	118	162	204	253	303	319	351	403	1210
104	119	163	205	254	304	320		404	1211
105	120	164	206	255	305	321		405	1212
106	121	166	207		306	322		406	1213
107	122	167			307	323		407	1214
108	123				308	324		408	1215
109	124				309	325		409	1216
110	125				310	326		410	1217
111	126				311	327			1218
112	127				312	328			1219
113	128				313	329			1220
114	129				314	330			1221
115	130				315	331			
	131				316	332			

THE ABOVE WORK HAS BEEN PERFORMED BY:

NAME_____

SUPERVISOR SUPERVISOR

ABOVE. Fig. 8. Form 83 used in the 15,000-mile inspection contains a listing of more than 120 items.

RIGHT. Fig. 9. Form 168 is the check off sheet used in the nightly inspections. The numbers in the columns represent vehicle numbers. On the actual form these columns are headed by specific bus makes. All buses undergo this inspection each night

by the shearing of cotter keys on clevis type connections on air-operated shift cylinders. This problem became very critical and was responsible for several road calls. The cotter key on the clevis pin assembly connecting the air cylinder rod and the shift lever on an automatic transmission, sheared off. Vibration and road shock caused the clevis pin to jump out, disengaging the air cylinder from the clutch lever. New cotter keys were installed, but the recurrence of this type of failure pointed to the need for a more permanent solution. Scheduled replacement of cotter keys before failure was obviously ridiculous. With a little more thought a modified clevis assembly was devised.

A thin narrow strip was clamped around the shank of the clevis yoke and fastened together with a bolt and nut. A spring was formed into the shape of a safety pin without the large clasp. The spring was installed between the ends of the clamp by passing the clamp bolt through the eye of the spring. A portion of the spring at one end was bent at right angles and fitted into a hole drilled through the center of the clevis pin. No cotter key is used. The downward spring tension against the pin holds it in place and eliminates all danger of the clevis pin jumping out.

Fig. 2 shows one of the original redesigned clevis assemblies. Fig. 3 is a further improved design clevis assembly with a U-shaped strip of steel brazed directly to the shank of the clevis yoke. The spring is fastened by a bolt in the same manner as in the original design. The cost of reworking this clevis is approximately 75 cents.

This same clevis assembly was also used in the third mount of the radiator suspension and can be seen plainly in Fig. 1.

Dash Pot Controls Shifting

POOR driving practices are often responsible for some of our maintenance problems. An example of this is the excessive gear tooth wear shown in Fig. 4.

Bus operators, without waiting for the proper reduction of engine speed, shift rapidly from forward to reverse, on vehicles equipped with automatic transmissions. The resultant clashing of gears caused the high gear tooth wear. After the second failure of this type we decided to take preventative measures into our hands and initiate another campaign.

The problem was to prevent the driver from shifting into reverse until the engine speed was reduced sufficiently to prevent gears clashing. We decided on a dash pot arrangement working against the shifting lever. This would compel the driver to shift at a slow rate and, consequently, allow sufficient time for the reduction in engine speed.

A radiator shutter power cylinder and piston unit was mounted on a bracket and fastened to a frame cross angle. It was placed in such a fash-

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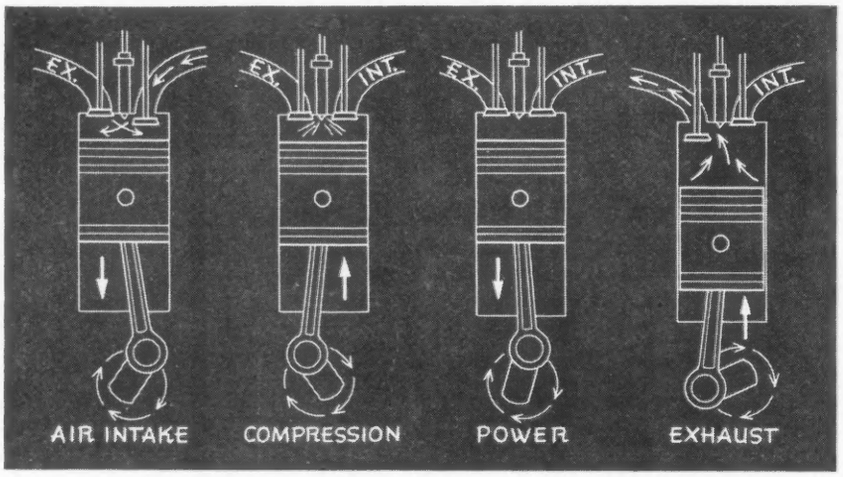
Principles of Diesel

by M. K. Simkins

Technical Editor
Commercial Car Journal



Schematic drawing illustrating the four events taking place in a four-cycle diesel engine with two revolutions of the crankshaft

IT IS ASSUMED at this point that the diesel engine has been selected for those vehicles falling into the categories outlined in the previous article. (May CCJ, pg 56.) It is further assumed that present maintenance personnel are not thoroughly familiar with the design, operation or maintenance of the diesel engine, though these men may be adept at gasoline engine work. Thus this article will review some of the mechanical and operating characteristics peculiar to this type engine with the thought that mechanics and fleetmen will want to get acquainted with this "animal."

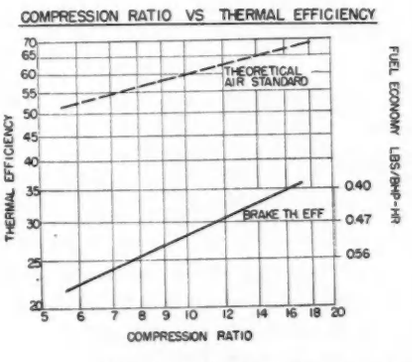
Basically the diesel is similar to the gasoline engine, primary difference being in the fuel and the method of getting it into the combustion chamber. Many of the engine parts are alike; in fact, parts, accessories and even blocks are interchangeable in some engines. In general, however, the diesel requires heavier construction due to higher combustion pressures, and fits and tolerances of pistons, rings, bearings, will of necessity be closer for the same reason. Accessories such as the generator, starter, electrical system are of heavy-duty construction (12 or 24-volt) though similar in operating principles.

The diesel is a compression-ignition engine. By that is meant the heat of compression ignites the fuel under extreme pressure, in contrast to the spark ignition principle used presently with gasoline models. In this engine the air and fuel enter the combustion chamber separately, mixing being accomplished by high pressure injection along with a swirling motion aided by various designs of piston heads, pre-combustion chambers and cylinder head designs. Either two-stroke or four-stroke engines are used with diesel fuel.

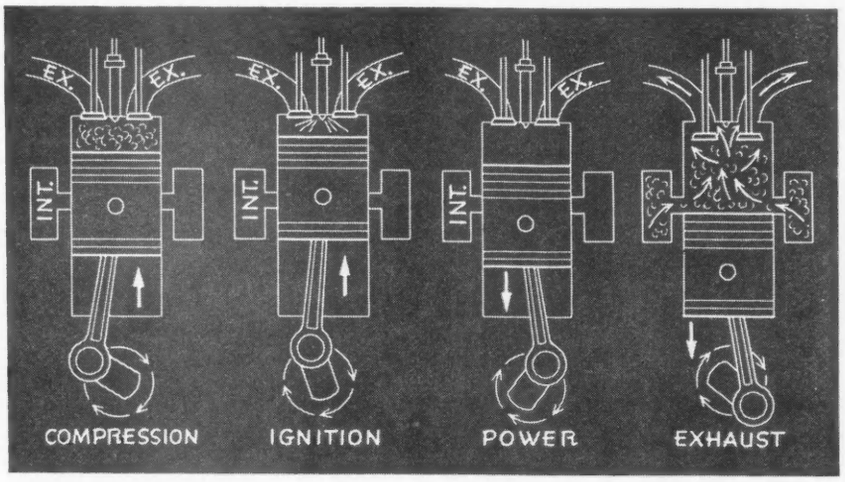
The four-stroke diesel cycles much as does the gasoline engine. The air-intake stroke fills the cylinder with pure air in contrast to the mixture of fuel and air taken in with the gasoline engine. On the compression stroke both valves are closed, and air is compressed to about 400 to 600 lb psi. This high pressure heats the air between 900 and 1400 deg F, a point sufficient to ignite the fuel oil as it is sprayed into the chamber via the injection nozzles. The expanding gases force the piston downward on the power stroke much as does the explosion in a gasoline engine. On the exhaust stroke, the exhaust valve opens permitting scavenging of the cylinder and making room for a fresh charge of air to be introduced through the intake on the next cycle. The main difference then between the two engines is that the mixture is completed outside the combustion chamber in a gasoline engine, while mixture is accomplished in the chamber under pressure in the diesel.

One popular make of diesel is designed on the two-cycle principle, similar to the two-cycle gasoline engine. In the two-stroke engine the intake and compression strokes are combined, and the power and exhaust strokes are accomplished in the second event. This engine employs intake ports in the cylinder walls in such a position that they are uncovered by the piston in its downward stroke, thus permitting entrance of the air. The upstroke of the piston compresses this pure air, and fuel injection occurs just before reaching top of the stroke. After explosion, the piston is forced down on the power stroke, but at the lower end of the travel, opens the intake ports at the same time that the exhaust valves in the head are opened. Blowers force fresh air into the cylinder and the spent gases out, expediting the unidirectional flow of air and providing fast and efficient breathing. Both types of engines are popular with diesel fleets today, and advantages are claimed for both.

Graph shows relation of compression ratio to thermal efficiency and fuel economy of a typical diesel engine



Above charts excerpted from a paper by



Schematic drawing shows events taking place in a two-cycle diesel engine with two revolutions of the crankshaft

CCJ DIESEL SERIES

Engine Operation

This second article in a series provides general information on diesel engine fundamentals, accentuating points on design, operation and maintenance practices

Comparison Chart, Gasoline and Diesel

	Gasoline	Diesel
Compression ratio	6.5 to 1	16 to 1
Compression pressure	125 to 175 lb psi	500 to 750 lb psi
Heat of compression	150 to 250 deg. F.	1000 deg F
Thermal efficiency	25%	35%
Combustion temperature	up to 2800 deg. F.	up to 1400 deg. F.
Fuel ratio	14 to 1	from 18 to 133 to 1
Ignition	spark	compression
Fuel introduction	air-fuel mixture	solid fuel oil
Speed control	air-fuel mixture	fuel

Diesel Characteristics

ABOVE is a comparison chart of a typical diesel and gasoline engine.

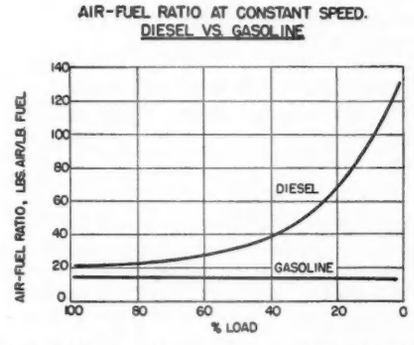
From this it can be seen that the diesel is inherently a more efficient engine. The relative brake thermal efficiency of the diesel is higher than any other type engine. Efficiency average is from 28 to 38 per cent; that of the gasoline engine is 22 to 30 per cent; the steam turbine 16 to 30 per cent; and the steam engine 6 to 10 per cent. Recent developments in the field of higher compression gasoline engines and in solid injection systems, however, may offset some of the headway the diesel has held over gasoline power plants.

Compression ratio in the diesel ranges around 16 to 1, whereas in the gasoline engine it is of necessity held to about 6.5 to 1, with exceptions. This is one of the factors contributing to its higher efficiency rating. Compression pressures, varying from say 125 lb at full load to 40 lb at 20 per cent load on a gasoline engine, are held at the same level on the diesel engine. This is due to the fact that output and speed are controlled by the amount of fuel entering the combustion chamber, rather than the amount of air-fuel mixture as is characteristic of the gasoline engine. Since automotive engines operate at peak output a small percentage of the time, the volumetric efficiency of the diesel becomes apparent.

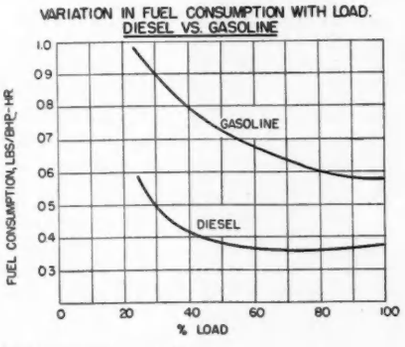
There appears to be a limit to the advantages gained from high compression in gasoline engines. Limitations of spark ignition characteristics, valving and gas distribution preclude

(TURN TO PAGE 134, PLEASE)

A comparison of air-fuel ratio of diesel and gasoline engine under various loads at constant speed



This graph shows comparison in fuel consumption with load of the diesel and gasoline engine



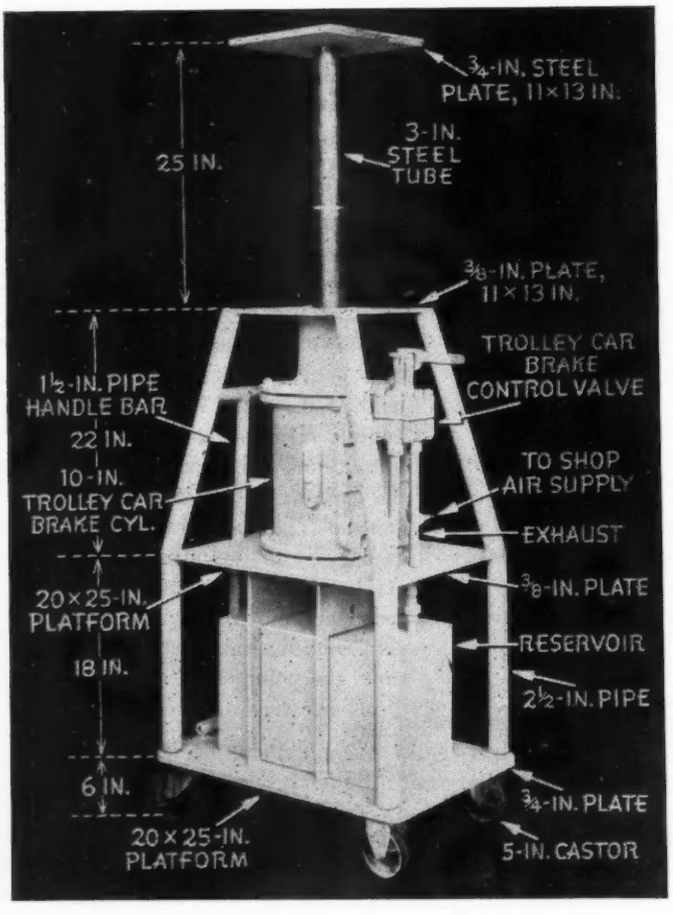
A. J. Blackwood and W. P. Lakin, of Esso Laboratories, Standard Oil Development Co.

Shop hints from FLEET SHOPS

$25 FOR THE BEST HINT PUBLISHED EACH MONTH • • •

$5 FOR ALL HINTS PUBLISHED EACH MONTH •

$25 Hint of the Month ★



Heavy-Duty Pit Jack

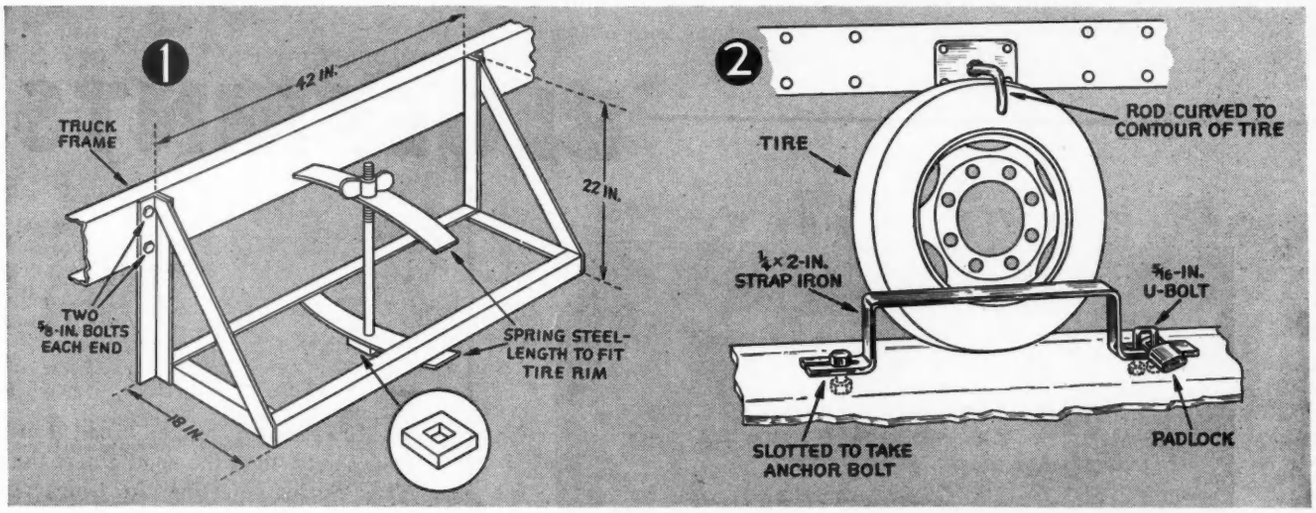
by Ray Parsons and Bill Blake
Southern Pennsylvania Bus Co., Chester, Pa.

This all-purpose, two-stage, air-controlled hydraulic jack has been designed and built in our shop from discarded trolley parts and scrap material. It is used primarily in the pits, but also can be used advantageously under lifts, for work on transmissions, differentials, gas tanks, etc.

The basic parts consist of an old 10-in. street car air cylinder, brake control valve and oil reservoir. The frame is made of ¾-in. steel plate, welded to 2½-in. pipe as shown in the illustration. Oil reservoir can be obtained from scrap, or it can be made up of welded sheet steel. The unit is portable, being mounted on four 5-in. casters and provided with a pipe handle bar. It weighs approximately 500 lb.

The two-stage feature is provided for through a double-acting piston arrangement. The piston center is drilled out to make a 3-in. second piston which is made up by plugging the end of a 3-in. pipe and fitting it with a leather cup. This is mounted within the primary cylinder guide, and is fitted with a removable plate at the top for a saddle. Thus the first stage lifts 10,000 lb a distance of 11 in., when the second stage takes over to life 1000 lb a distance of 25 in.

A fitting is provided for the regular shop air supply to actuate the hydraulic pistons through a control valve mounted on the side of the lift. With but the one modification standard parts and a hook up similar to that used on any hydraulic equipment are employed.



1. Spare Tire Rack

by Maurice J. Pinette
Law & Ingham Transportation Co.
Nashua, N. H.

Here is a truck tire rack I have designed for our fleet. It can be made longer or shorter to accommodate any size.

This modification eases the job of removing a spare. It does not get damaged as does the rack mounted under the rear of the frame. Air pressure can be checked easily, and high lifting is eliminated. An aluminum flap mounted between the rear wheels and the tire carrier will keep the spare tire free from mud and snow.

2. Relocated Spare Tire

by Preston R. Coleman
Rainey Wood Coke Co.
Norristown, Pa.

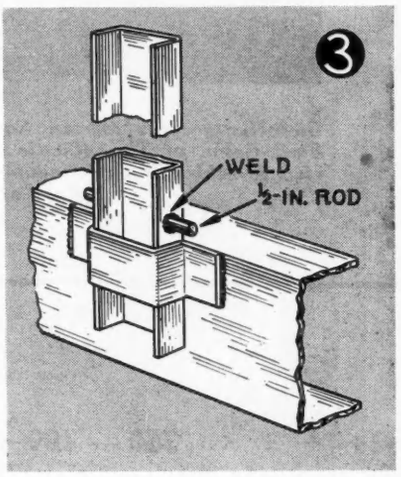
Several makes of ½-ton panel trucks have sub floors, where spare tires are kept, but they are very easily "borrowed" from this location. Here is a way to relocate them so that they can be locked up.

The tire is positioned at the front of the body, or at either side, whichever is preferred. A ½-in. steel rod is bent to conform to the contour of the tire and the other end is threaded and bolted to the side just over the spare. A piece of ¼ x 2-in. flat steel 44 in. long is bent as shown so that the center portion is approximately 6 in. above the mounting. Slots are cut into the base, one to take the mounting bolt and one to take a 5/16-in. U-bolt with padlock.

3. Steel Body Stakes

by Walter H. Pfeiffer
Pittsburgh, Pa.

Under rough usage the wooden stakes for stake bodies break. With constant usage they wear down, chafe and splinter. We replace them with steel channel iron posts of a size sufficient to hold the load. Sections of ½-in. rod are inserted and welded into the stake at the bottom.

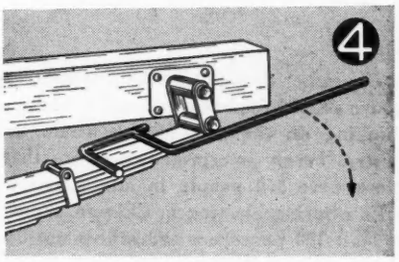


4. Spring Tool

by Nick Jerger
Milwaukee Novelty Dye Works
Milwaukee, Wis.

To change a broken or worn spring shackle we simply run the truck onto the lift, insert the tool as shown and push down to a vertical position. No blocking or jacking is required.

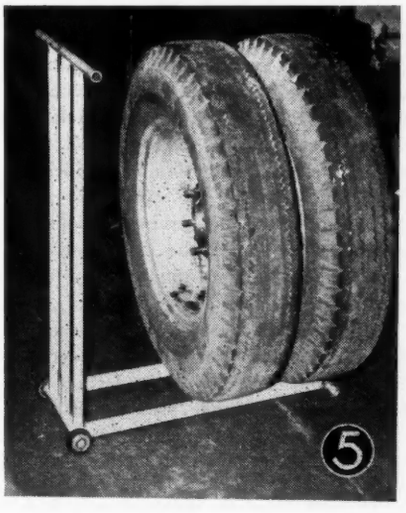
To make the tool, heat an old drive axle and bend as shown. Weld a lip to the second elbow to keep tool from slipping off top of spring.



5. Dual Wheel Dolly

by R. J. Keefer
Keefer's Garage
Rockford, Ill.

This picture will show the wheel dolly we made for removing and transporting heavy dual-wheel assemblies. The rectangular base is made of sections of ¾-in. gas pipe welded together with four roller skate wheels set at each corner. The handle is made from three sections of pipe welded to the base and to a crosspiece at the top. Tires are set into the base with no lifting.



BLUEPRINTS

Dick Hardgrove, chairman, Equipment Advisory Committee, with Emil Gohn, of The Atlantic Refinery Co., examine the 7-wire electric cable connector adopted by ATA to simplify the interchange of semi-trailers

✣ ✣ ✣ ✣ ✣ 350 — 100 ÷ 25,000 = 1% ✣ ✣ ✣ ✣ ✣

(A Strictly Editorial Comment)

The rather strange equation reproduced above should require some rather serious thinking on the part of the whole industry. Freely interpreted, it means that there were 350 people in attendance at ATA's Spring Meeting in Chicago, minus at least 100 purveyors and others not directly connected with truck fleet operation, divided by the 25,000 fleets of eight or more trucks in the U.S.A., for a total attendance ratio of 1 per cent.

While it is conceived that it might take a "figurative" mind to conceive such an equation, it takes no mathematician to figure that that's a mighty small ratio for a meeting of national significance. Even so, it is on the optimistic side; for if we figured the number of potential executives available, the ratio would be reduced to about one-quarter of one per cent.

At a time when the industry needs to pull together more than it ever has before, we can't help wondering what happened to the other "ninety and nine."

For, in spite of good advance billing of many worthwhile projects of interest to all, the simple truth is that 99 per cent elected to stay home; elected to let the 1 per cent, at their own expense, make the decisions, discuss the problems, do the leg work for the whole industry.

For the one per cent, it should be added that at least one West Coast operator and at least one East Coast operator had as many as four in attendance. It takes a lot of dollars for that kind of cooperation; dollars which obviously not all can afford. But it shows the extent to which some operators are willing to go, not only for their own betterment, but also for the good of all.

While, admittedly, not all segments of the industry are interested in terminal management or trailer interchange, can anyone deny that their safety program could not bear improvement through the mutual interchange of ideas or that such things as mufflers and brakes are not of vital interest to both their safety and public relations activities?

—THE EDITORS

MUFFLERS, brakes, road failures, safety, took the spotlight at the ATA Spring Meeting in Chicago, when over 350 fleetmen put respective heads together to set up plans and promises for improving highway transportation. Three councils; the Safety Supervisors, Terminal Operations, and Equipment and Maintenance Councils met May 8 to 12 at the Morrison Hotel in separate sections, while the Equipment Advisory Committee dug into other related problems of the day.

In an all-day session more than 70 truck operators and truck and muffler manufacturing representatives battled the truck exhaust noise problem. Net result, the formation of a committee representing all three groups to conduct further study. The committee will determine the acceptable exhaust noise level and when this criterion is established, it will proceed with experimentation on the manufacturing of proper mufflers which will control such noise to the level acceptable to the general public. A new three-band meter, already in use on the West Coast, promises to give more accurate test data than instruments previously available. With this device, test results correlate with reactions of the human ear so that more accurate and practical tests can be made. When specifications can be established, it is expected that muffler manufacturers will be able to provide a muffler that will be acceptable.

On the subject of odor and fumes much work remains to be done. However, a manufacturer in Wayne, Pa., is working on a catalytic apparatus which renders exhaust gases nonpoisonous and odorless. The unit as presented at the meet is substituted in place of the standard muffler. Fresh air is introduced through a venturi into the exhaust gas stream to provide the necessary oxygen for the elimination of carbon monoxide and

# of PROGRESS

Spring From ATA Spring Meet

Electrical coupler is accepted, muffler study continues, road failures are analyzed, terminal operations are expedited as three ATA groups draft plans for new efficiency, improved safety

other obnoxious constituents. At present this device is being provided for fork lift trucks, but the importance to highway vehicles cannot be denied.

Highlight of the Committee's work was the announcement of recommendations for the newly adopted standard dimensions for electrical connectors and the standard wiring color code. While this standardized coupler was developed in connection with the trailer interchange plan, it will prove of maximum benefit only if it is accepted and specified by all trailer operators, regardless of whether they plan to interchange trailers.

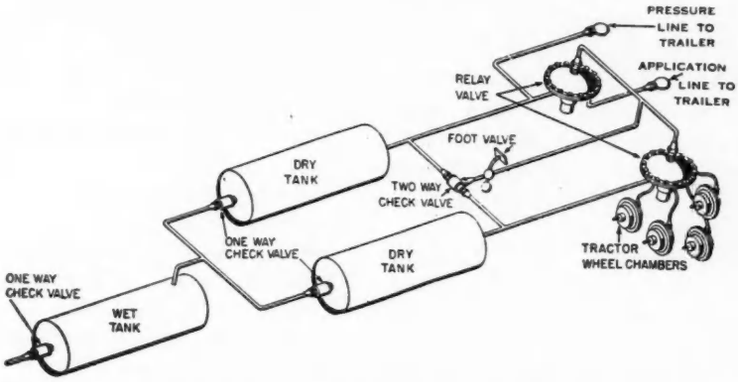
As described in the April issue of CCJ, the new electrical coupler incorporates seven circuits: ground, marker and clearance lamps, left hand directional signal, stop light, right hand directional signal, tail light and auxiliary circuits. Color code can be obtained from this previous issue, page 208.

The committee did not fare so well with recommendations for air brake piping arrangement and couplers. It was decided that more work remains to be carried out before recommendations can be made. The piping diagram submitted by Homer T. Seale was described as an improvement over existing systems in that tractor brakes are automatically set in the event of trailer breakaway. Thus both tractor and trailer are protected with exist- air brake units. Gladhands have been kicked around a bit over the last few years, but the committee was not ready to cite improvements in the form of automatic straight through couplers.

Equipment and Maintenance

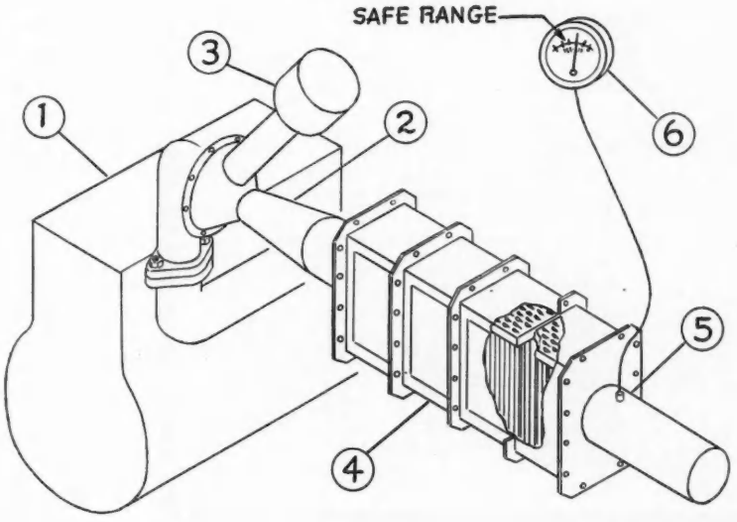
THE Equipment and Maintenance Council filed into a conference room on Thursday to discuss the age old question of road failures under the able direction of W. Fred White,

(TURN TO PAGE 174, PLEASE)



Piping diagram for air brake systems submitted by Homer T. Seale. With existing valves and components both tractor and trailer can be protected in event of break away. If pressure line breaks, lower tank supplies air for tractor. If aplication line breaks, upper tank supplies air to trailer

The OCM Catalytic exhaust developed by Oxy-Catalyst Mfg. Co. was introduced for consideration of the muffler committee. The unit renders exhaust gases non poisonous and ordorless



CTR's large and varied fleet, based in Los Angeles and Oakland, had high accident rate but program cut it 61%

SELLING SAFETY Cuts

DURING THE EARLY PART of 1948, when its accident frequency reached an alarming rate, the California Truck Rental Co. fleet consisted of several hundred motor vehicles of all types and sizes, including passenger cars. It operated out of the main branch in Los Angeles, and other branches in Oakland, San Francisco and Fresno.

These vehicles were operating under rental or lease agreement to individuals and companies and numbering anywhere from one to as many as 50 vehicles with a single company. They were operating in a wide area from San Diego, in the south, to the Oregon border, and from Los Angeles, eastward, to Las Vegas in Nevada and Yuma in Arizona.

Preventive maintenance service and repairs were performed by company shops located at the four branches, and by mobile service units that travelled from point to point on a regularly established schedule. Some vehicles, being out of economical range of the mobile unit, were maintained by contract garages in the vicinity where these vehicles were located. All of these vehicles were being driven by employes of the lessees, as this company "furnishes everything but the driver."

Safe Drivers a Problem

THE lessor had no actual control over any of these hundreds of drivers, and in most cases knew little, if anything, about these drivers. The lessor sought some protection by writing into the rental or lease agreement that the lessee would only employ safe, careful and licensed drivers who would be expected to operate the ve-

FIG. 2. California Truck Rental's Safety director established a detailed record of driver accidents and causes

DRIVER'S ACCIDENT RECORD CARD

DOE, JOHN J. — Driver's Name

DOE & DOE, INC. — Employer

219 Dee St., Los Angeles, Calif. — Address

File No.	Date of Accident	Nature of Accident	Probable Cause
LOOP	2/13/48	IN PARKING TRUCK, OUR DRIVER BACKED INTO GRILLE OF PARKED CAR.	OUR DRIVER: LACK OF PROPER OBSERVATION
L22P	4/16/48	OUR TRUCK IN MAKING NORMAL STOP FOR TRAFFIC SIGNAL, AND DRIVER MAKING HAND SIGNAL, WAS STRUCK IN REAR BY CAR.	OTHER DRIVER: APPARENTLY FOLLOWING TOO CLOSELY.
I66P	1/10/49	IN DRIVING ON OPEN HIGHWAY AT ABOUT 40 MPH, OUR DRIVER SAW OTHER CAR STOPPED AT SIDE ROAD TO RIGHT AT ABOUT 70 YARDS DISTANCE. OUR DRIVER DID NOT SLOW DOWN, AND AT LAST MINUTE, OTHER CAR PULLED ONTO HIGHWAY DIRECTLY INTO PATH OF OUR TRUCK. OUR TRUCK COLLIDED WITH OTHER CAR.	OTHER DRIVER PRIMARY CAUSE OF ACCIDENT. OUR DRIVER CONTRIBUTED TO ACCIDENT BY NOT DRIVING DEFENSIVELY, AND SLOWING DOWN TO PREPARE FOR SUCH A MANEUVER BY THIS OTHER CAR.

FIG. 3. To facilitate correct procedure in handling accident reports, this form was distributed to CTR lessees

SUGGESTIONS TO LESSEES

1. Instruct drivers in correct accident procedure. Arrange training programs. Promoting public safety and performing contract promises will also serve lessees best interests.

2. Cost of insurance and consequent rate of hire of rented vehicles depend largely upon proper cooperation with the insurer in reporting and defending accident claims.

3. Immediately after an accident, check with the driver and make sure he has reported, or reports immediately by telephone, to CALIFORNIA TRUCK RENTAL COMPANY, when personal injury or serious property damage resulted from the accident.

4. At once, make up four (4) copies of the insurance company's Accident Report forms.

   It is most important that these reports be prompt, accurate, clear and complete. Every BLANK SHOULD BE FILLED IN, giving the desired information. The inquiry is unrelated to the accident, draw a line through the blank space provided for an answer. Any mark on the CTRC vehicle, however slight, is important on the question of how the accident happened.

5. Immediately send all four (4) copies of the Accident Report by first mail or courier to CALIFORNIA TRUCK RENTAL COMPANY, 930 East Sixth Street, Los Angeles 21, California, Attention: Accident Desk. That desk will immediately send copies to the proper insurance company.

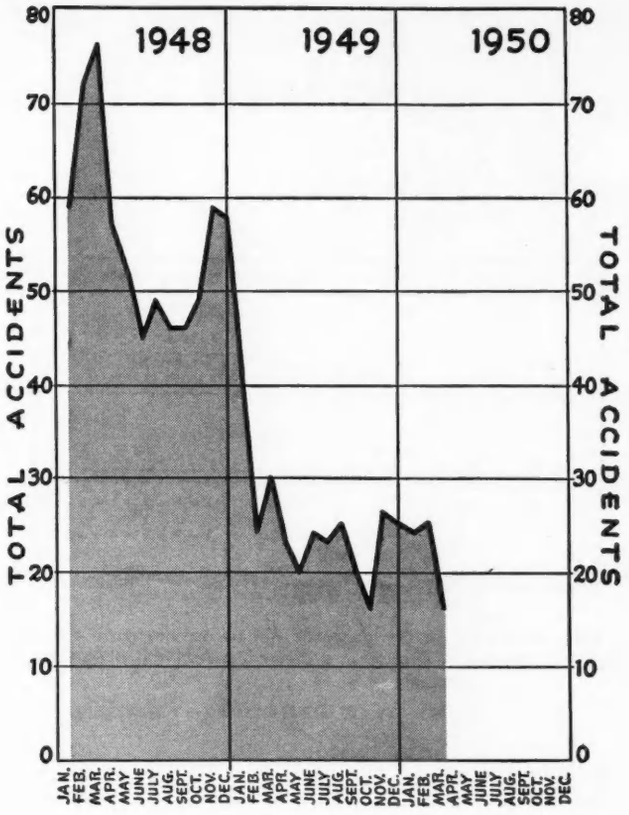


FIG. 1. CTR's lessees were unreceptive to safety programs, but diplomatic handling and effective selling paid off. Accident rise, late in '48, shows effect of brief relaxation

Accidents 61%

West Coast truck rental fleet's safety director tells of lessee indifference to safety programs and methods he used to win acceptance and reduce accidents

By Robert L. Douglas
Safety Director
California Truck Rental Co., Los Angeles, Cal.

hicle with reasonable care. Upon complaint from the lessor specifying any reckless, careless or abusive handling of the vehicle, or any other incompetence by a driver, the lessee agreed to remove immediately such driver and make a competent replacement.

Under these circumstances an incompetent driver could only be uncovered, either through having a traffic accident—which, upon investigation, would prove misjudgment or recklessness of the driver—or by abuse of equipment, caused by lack of training and proper knowledge. In either case, the damage was done, and corrective action taken by the lessor in having such drivers replaced, did very little, if anything, toward preventing similar occurrences in the future.

Accident Rate Climbed

THE accident rate climbed steadily during the first three months of 1948. Insurance rates rose by a considerable amount to cover what the insurance companies termed a poor risk, with the threat of policy cancellation imminent.

In nearly all cases these increased insurance rates could not be passed

(TURN TO PAGE 64, PLEASE)

CALIFORNIA TRUCK RENTAL COMPANY
ACCIDENT ANALYSIS

	1948													1949											
	January	February	March	April	May	June	July	August	September	October	November	December	Total Accidents	Percentage	January	February	March	April	May	June	July	August	September	October	November	December	Total Accidents	Percentage
1. STOPPED	4	2	5	5	1	6	3	1	2	6	8	6	49	11.29	2	4	4	1	2	3	1	1	0	3	1	3	32	21.76
2. BACKING	18	19	14	9	9	12	12	5	10	8	8	10	131	30.18	5	1	3	4	3	8	6	4	4	3	7	6	73	51.72
3. DRIVING	9	14	16	9	9	14	10	6	4	10	12	8	121	27.87	5	7	6	6	3	10	12	7	8	5	8	6	92	56.92
4. TURNING	5	4	8	3	3	4	2	4	1	6	0	4	44	10.13	4	3	2	4	3	0	1	3	2	3	2	0	31	26.96
5. INTERSECTION	3	1	3	5	0	0	1	0	3	3	2	4	25	5.76	6	0	1	1	1	2	1	6	2	1	5	7	38	27.85
6. REAR END	7	9	5	6	8	1	3	7	3	3	3	7	62	14.28	6	1	2	1	3	1	2	3	4	1	1	1	29	25.81
7. MECHANICAL FAILURE	0	0	0	0	0	0	1	0	0	0	1	0	2	.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
TOTAL ACCIDENTS	43	49	51	37	30	37	32	23	23	36	34	39	434		28	16	18	17	15	24	28	25	20	16	26	25	298	100.00
PROPERTY DAMAGE (Our Vehicle)	15	14	13	10	6	9	5	4	7	6	15	16	116		16	10	5	5	8	7	11	12	3	5	9	11	116	
PROPERTY DAMAGE (Other Vehicle)	26	42	39	24	26	30	27	21	15	27	24	29	340		23	13	14	5	10	22	21	24	19	15	24	23	259	
PERSONAL INJURY	1	1	0	1	1	0	0	1	2	2	4	1	14		0	0	0	1	2	0	0	7	0	1	3	1	24	

FIG. 4. Accident analysis form. Normally, Los Angeles and Oakland accidents are tabulated separately. This illustration shows total Los Angeles accidents for 1948, and combined accidents of Los Angeles and Oakland for 1949. The 1949 total is lower than that of Los Angeles alone in 1948

. . . SELLING SAFETY

Continued from Page 63

CALIFORNIA TRUCK RENTAL COMPANY

SAFETY PROGRAM

1949

LESSEE	DRIVER MEETINGS	SAFETY PROGRAMS IN EFFECT	1949 ACCIDENTS					1948 ACCIDENTS				
			January	February	March	April	May	January	February	March	April	May
John Doe Company	1/7 - 2/9 - 3/8	1 - 2 - 3 - 4 - 5 - 6	2	2	1	1	2	0	0	1	0	0
Doe & Doe	1/9 - 2/8 - 3/10	1 - 2 - 3 - 4 - 5 - 6	2	3	1	1	2	1	1	0	0	1

FIG. 5. CTR's safety director keeps an accurate record of his activities on this form. It shows, at a glance, meetings, programs and accident trend

along to where they rightfully belonged because of existing contracts. However, even if they could be passed along to the lessees whose drivers were the cause of the accidents, it was not the solution to reduced accident frequency.

A sound plan had to be evolved, whereby accident frequency would be reduced, all threat of insurance cancellation removed, and insurance rates reduced to normal. Company executives consulted with insurance company officials and their safety directors seeking help and guidance in formulating a plan.

Safety Department Established

DURING the summer of 1948, a safety department was created. The safety director's first task was to make an immediate study of the entire situation, determine the causes of all accidents that had occurred since the first of the year, and present a sound safety program. This program had to be tailored in such a manner that it could be presented to lessee management to fit each particular operation and be accepted by them as a benefit and a service.

In order that the safety director personally know the people with whom he had to work, appointments were made with all lessee management by the salesman or company executive concerned. The safety director was introduced, his duties explained, and a brief resume of the safety program given. At these initial meetings with lessee management, the safety director planned subsequent interviews with persons with whom he would work.

Opposition Encountered

IN SOME cases, considerable opposition arose, as some lessee managers considered a safety program of no consequence, and a waste of their company's time. Cases of this type had to be met with tact and patience, and a selling job done to convince them that they would ultimately benefit from such a program.

It was not surprising to note, as the safety program progressed, that the lessee managers, who were hardest to convince that they would benefit from such a program, today are most interested, and show their interest in many ways; such as calling and asking when the next driver safety meeting is to be scheduled.

To get the ball rolling immediately, the names of all lessees operating five or more vehicles were furnished to the Greater Los Angeles Chapter of the National Safety Council, Fleet Division. The chapter, in turn, mailed entry blanks requesting lessees to participate in the Fleet Safety Contest. At the same time, the council mailed applicable literature to the homes of drivers, explaining the contest and extolling the benefits they, as drivers, could obtain. Such literature mailed to drivers' homes served to enlist the aid of their families and acquaint them with services of the safety council. Thus, not only a personal interest, but a competitive spirit was created while the new safety program was in process of formation.

A complete survey of all accident reports covering January, February and March of 1948—a total of 207 accidents—indicated with few exceptions that the majority of these accidents had been caused by the poor judgement and careless operation. A card file was made up — one card for each driver's name appearing on an accident report — and filed alphabetically by driver's name, with his employer's name appearing at the right-hand top of the card. Essential information recorded on this card was the accident report file number, date of the accident, nature of the accident and probable cause, as indicated by Fig. 2.

This card file was to become extremely valuable when contacting lessee management to bring a driver's accident record to their attention. From this experience, it was found that, in most cases, lessee management had no idea whatever that their drivers had been involved in accidents. They were most surprised when confronted with an accident record showing two to four accidents; many happening within a few months time. Lack of proper knowledge of these accident records was due to the fact that their drivers usually reported accidents directly to California Truck Rental Co. They made out the accident report either when they returned the vehicle to the yard, or stopped by specially to make out the report. In most cases, nothing was ever reported by the driver to his employer.

Meetings with Management

THE next and very important step taken by the safety director was the arranging of personal meetings with lessee management to explain why there MUST be a safety program, and to seek their initial and continued cooperation in the conduct of the program Without their cooperation any safety program could accomplish little. Therefore, lessee management had to be SOLD on the multitude of benefits that could be reaped, not only by the drivers, but by their companies.

The following discussion points were used successfully in seeking the cooperation of lessee management, which, today, is 100 percent:

(a) The number, cause and type of accidents his drivers were having. Where applicable, get him to admit there was just cause for improvement.

(b) Economic loss of driver's time while tied up at the scene of an accident, no matter how minor the accident might be, and the time required later to make out the accident report. Loss of office time in making out and

(TURN TO PAGE 156, PLEASE)

Fleets Report Life of

Master Cylinders is 49,188 Miles

FLEET OPERATORS' EXPERIENCE HANDBOOK

SURVEY NO. 17

Part 2

Hydraulic brake system parts replacement experience shows master cylinder boots are first to be replaced at average of 44,242 miles; piston cups are second, at 45,123; and master cylinders are third

Analysis **by A. W. GREENE,** *Managing Editor, Commercial Car Journal*

APPROXIMATELY 10,000 MILES after a set of brake linings wear out, certain important parts of the hydraulic braking system will require replacement. The first of these are master cylinder boots; next, brake piston cups; then, master cylinders.

This is a general observation, based on reports that an average set of brake linings lasts 35,301 miles (See Survey No. 17, Part 1, May, 1950) plus data contained in Tables 1 and 2 in this study. This observation also is based on national averages. Fleet operators will find exceptions to this mileage by referring to their particular vocational average in the tables.

53,867 MILES

150,000 Miles is Maximum Life Reported for Boots

Table 1

Lowest boot mileage reported is 6000. Range of reported replacement mileages of wheel cylinders varies from 4000 to 200,000; with 53,867 average

VOCATIONAL GROUPS	Number of Fleets Reporting	HYDRAULIC BRAKE WHEEL CYLINDERS Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE WHEEL CYLINDERS Mileage Average	HYDRAULIC BRAKE BOOTS Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE BOOTS Mileage Average	HYDROVAC UNIT Mileage Range (Last 000 Omitted)	HYDROVAC UNIT Mileage Average	OTHER BRAKE BOOSTER (except Hydrovac) Mileage Range (Last 000 Omitted)	OTHER BRAKE BOOSTER (except Hydrovac) Mileage Average
FOR-HIRE CARRIERS	24	15 - 100	60,261	23 - 150	57,947	10 - 100	56,200	30 - 200	69,583
FOOD DISTRIBUTION	35	4 - 200	55,636	6 - 150	48,097	10 - 200	60,405	10 - 100	53,273
GOVERNMENT	23	10 - 100	41,665	9 - 80	32,048	10 - 100	50,114	15 - 80	49,286
CONSTRUCTION AND MINING	3	50 - 80	60,000	50	50,000	60	60,000	70	70,000
INDUSTRIAL	6	8 - 100	53,800	30 - 100	63,750	25 - 200	92,500	10 - 100	71,250
PETROLEUM	5	25 - 100	72,000	15 - 100	51,000	35 - 86	52,750	22 - 111	61,000
PUBLIC UTILITY	20	15 - 80	48,450	20 - 70	41,000	15 - 100	43,771	10 - 80	49,667
RETAIL DELIVERY	17	7 - 200	54,438	7 - 50	30,688	8 - 100	47,556	10 - 100	47,222
TRUCK RENTAL	4	30 - 100	68,750	20 - 95	48,750	30 - 85	51,250	40	40,000
TRUCK AND BUS FLEETS, MIXED	2	60	60,000	60	60,000	30 - 50	40,000	50	50,000
TOTAL AND AVERAGE ALL VOCATIONAL GROUPS	139	4 - 200	53,867	6 - 150	44,242	8 - 200	54,317	10 - 200	58,824

An attempt to relate the reported mileages to fleet operation characteristics has failed to establish any relationship. Curiously enough, the lowest mileages were not reported by the stop-start fleets, where braking systems are called upon to function more often than in other types of fleet operation.

This statement may belie the figures shown in the tables. The seeming contradiction is explained by the fact that not all fleets in the Food Distribution Group, for example, are bakeries and dairies with stop-start delivery routes. A great many of these fleets fall in the category of local and over-the-road delivery operations—such as meat packers, wholesale grocers, and so on. It was this type of operation, and not the route delivery fleets, that established the low in the mileage range for the Food Distribution Group. A similar condition was found in the Retail Delivery Group.

Boots Replaced First

AS MENTIONED, the first part to be replaced is the master cylinder boot. The average life of this part is 44,242 miles, although some fleets report as few as 6000 and as many as 150,000, as shown in Table 1.

Wheel cylinders last 53,867 miles, or about 10,000 more than boots. In the light of our introductory remarks, pointing out that there was no relationship between low mileages and multi-stop operations, it may be of interest to know that this is the only case where such a fleet, a southern dairy, reported the lowest mileage—4000 miles. A New England wholesale bakery fleet, in the same vocational group, and a wholesale newspaper delivery fleet in New York City, reported the highest mileage—200,000.

The replacement mileages of two other hydraulic brake system parts, the Hydrovac power brake and the basic brake boosters, also are shown in Table 1. Due to design dissimilarity, comparative performance analysis of these parts is not practicable.

Piston Cups and Master Cylinders

TABLE 2 supplies mileage data on the second and third most frequently replaced parts of the hydraulic brake system. Piston cups, the second part, averages 45,123 miles, or approximately 1000 more than the boots. This increase also is indicated in the low of the range of reported mileages.

The overall average life of the master cylinder seems low. The fact that 200,000-mile life has been reported, and that quite a few fleets report mileages in the 100,000-mile range, indicates that better performance than the 49,188-mile average is possible. In all probability, the answer lies either in better or more frequent maintenance. In fact, there is no doubt that all parts of the hydraulic braking system would profit by a little more emphasis on maintenance. Special care in preventing fluid contamination and frequent cleaning of booster air filters, for example, will remove the two major causes of premature wear of hydraulic brake system parts.

The last parts included in this study are hydraulic brake lines and connection. As shown in Table 2, their life averages well over 70,000.

This study will be continued with an analysis of the major parts of the air brake systems.

49,188 MILES

Brake Lines and Connections Exceed 70,000 Miles

Table 2

National average life of hydraulic brake lines is 72,798 miles; connections, 76,471. Master cylinder life is as low as 9000, high as 200,000

VOCATIONAL GROUPS	Number of Fleets Reporting	HYDRAULIC BRAKE MASTER CYLINDER Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE MASTER CYLINDER Mileage Average	HYDRAULIC BRAKE PISTON CUPS Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE PISTON CUPS Mileage Average	HYDRAULIC BRAKE LINES Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE LINES Mileage Average	HYDRAULIC BRAKE CONNECTIONS Mileage Range (Last 000 Omitted)	HYDRAULIC BRAKE CONNECTIONS Mileage Average
FOR-HIRE CARRIERS	24	23 - 100	57,125	23 - 100	54,609	23 - 150	80,389	23 - 150	81,500
FOOD DISTRIBUTION	35	9 - 160	54,094	7 - 100	50,194	25 - 150	77,414	30 - 200	86,380
GOVERNMENT	24	9 - 100	37,258	9 - 80	32,573	20 - 150	64,600	30 - 100	61,111
CONSTRUCTION AND MINING	3	50 - 60	53,333	50 - 60	53,333	45 - 100	72,500	60	60,000
INDUSTRIAL	4	20 - 100	48,750	30 - 100	55,000	50 - 100	68,750	50 - 150	100,000
PETROLEUM	5	40 - 100	63,400	15 - 100	51,400	18 - 150	84,000	30 - 100	68,333
PUBLIC UTILITY	21	14 - 70	40,781	20 - 65	36,941	30 - 88	59,500	30 - 100	64,300
RETAIL DELIVERY	17	10 - 200	45,588	7 - 150	40,750	20 - 150	69,583	20 - 125	70,000
TRUCK RENTAL	4	50 - 100	77,500	30 - 95	53,750	60 - 100	81,250	60 - 90	75,000
TRUCK AND BUS FLEETS, MIXED	2	30 - 50	40,000	20 - 50	35,000	80	80,000	.....	.....
TOTAL AND AVERAGE ALL VOCATIONAL GROUPS	139	9 - 200	49,188	7 - 150	45,123	18 - 150	72,798	20 - 200	76,471

Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIER—Motor Freight Operators in Local and Over-the-Road Service.
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.
GOVERNMENT—State, County, Municipal, and Federal fleets.
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.
INDUSTRIAL—Fleets operated by manufacturers.
PETROLEUM—Production and Distribution fleets.
PUBLIC UTILITY—Gas, Power, Water and Telephone fleets.
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Store, Beverage fleets.
TRUCK RENTAL—Agencies leasing motor trucks.
TRUCK AND BUS FLEETS, MIXED — Passenger Carriers operating own truck fleets.

Mechanics' Squawks Squelched with HOME-MADE BRAKE MACHINE

Remotely controlled machine facilitates the job of grinding brake shoes to the drum. Better fitting practices eliminate brake squeal

By L. Tucker
Superintendent of Equipment Maintenance,
Georgia Power Co., Atlanta, Ga.

WE HAVE FOUND that brake squeal can be partially controlled by circle grinding the brake lining to fit the drums. Until recently this was accomplished with a portable, manually-operated, brake shoe grinding machine. This machine was accurate and satisfactory performance-wise. However, the operators complained that the grindings compelled them to wear respirators and that driving the grinder manually soon became an offensive task. Therefore, it was necessary that something be done for the operator to remedy this condition.

Following the engineering design of our assistant superintendent of equipment, T. J. Gordon, an automatic brake shoe grinder was finally constructed. This machine requires no attention during grinding other than reversing its operation. Since it is unnecessary for the operator to rotate the grinding head manually, he can now stand clear of the unit, completely out of the zone contaminated by the grindings.

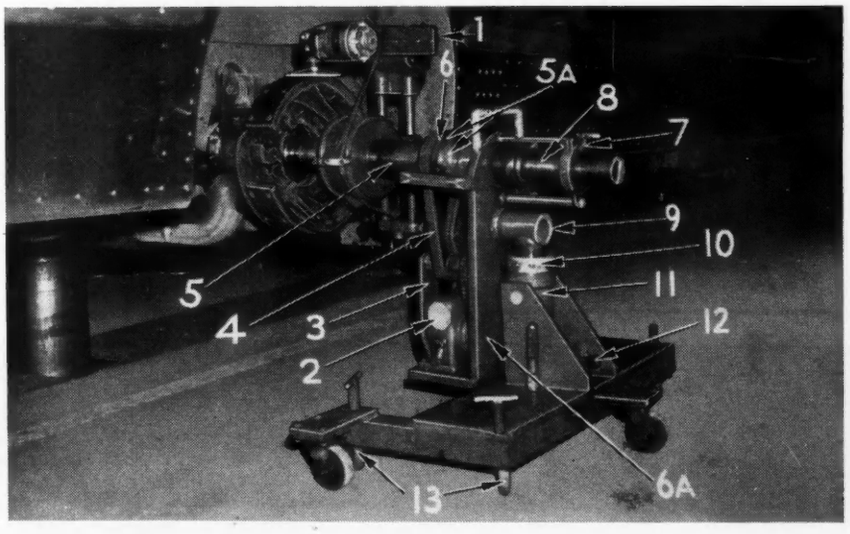
By referring to the illustration, it can be seen that we salvaged the head and beam (1), from the manual machine and added the necessary structure and machinery to make up an automatic unit.

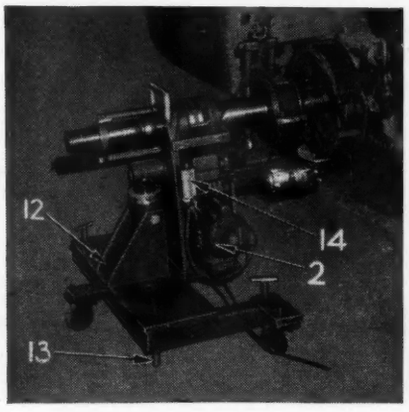
The machine consists of a ratiomotor unit (2), chain-drive countershaft (3), and a V-belt drive (4), to the horizontal beam (5), holding the grinding head assembly. Behind the final drive pulley (6), a set of slip rings (5A), are incorporated over the beam bearing, to permit driving the disc grinder electrically.

Approximately 8 in. beyond the beam bearing a split nut 7, is located to traverse the beam through the 4-pitch Acme thread (8). This thread is cut on the continuation of the beam shaft.

For alignment of the grinder, the

(TURN TO PAGE 140, PLEASE)





Two views of automatic brake shoe grinder in position and ready for operation. The entire unit, except the manual grinding head assembly, was designed and made up by company personnel. Manual grinding head assembly is shown at 1, Boston ratiomotor assembly 2, chaindrive countershaft 3, V-belt drive 4, horizontal beam 5, slip rings 5A, final drive pulley 6, drive mechanism mounting plate 6A, split nut 7, 4-pitch Acme thread 8, cylindrical bracket 9, height-adjusting spanner nut 10, mounting tube 11, tilt adjusting screw 12, base lock screws 13, reversing switch 14. This switch controls the direction of rotation and feed of the grinding head

MURDER In the Fleet Field

. . . . the Victim

Electric Welds

These parts are headed for the boneyard.

A study of typical weld failures tells why

Photos courtesy Lincoln Electric Co. Information supplied by Hobart Bros. Co.

Warping

Cause

1. Shrinkage of weld metal
2. Faulty clamping of parts
3. Faulty preparation
4. Overheating at joint

Remedy

1. Peen joint edges before welding
2. Weld rapidly
3. Avoid excessive space between parts
4. Clamp parts properly. Back up to cool
5. Adopt a welding procedure
6. Use high speed, moderate penetration electrodes

• • •

Incomplete Penetration

Cause

1. Speed too fast
2. Electrode too large
3. Current too low
4. Faulty preparation

Remedy

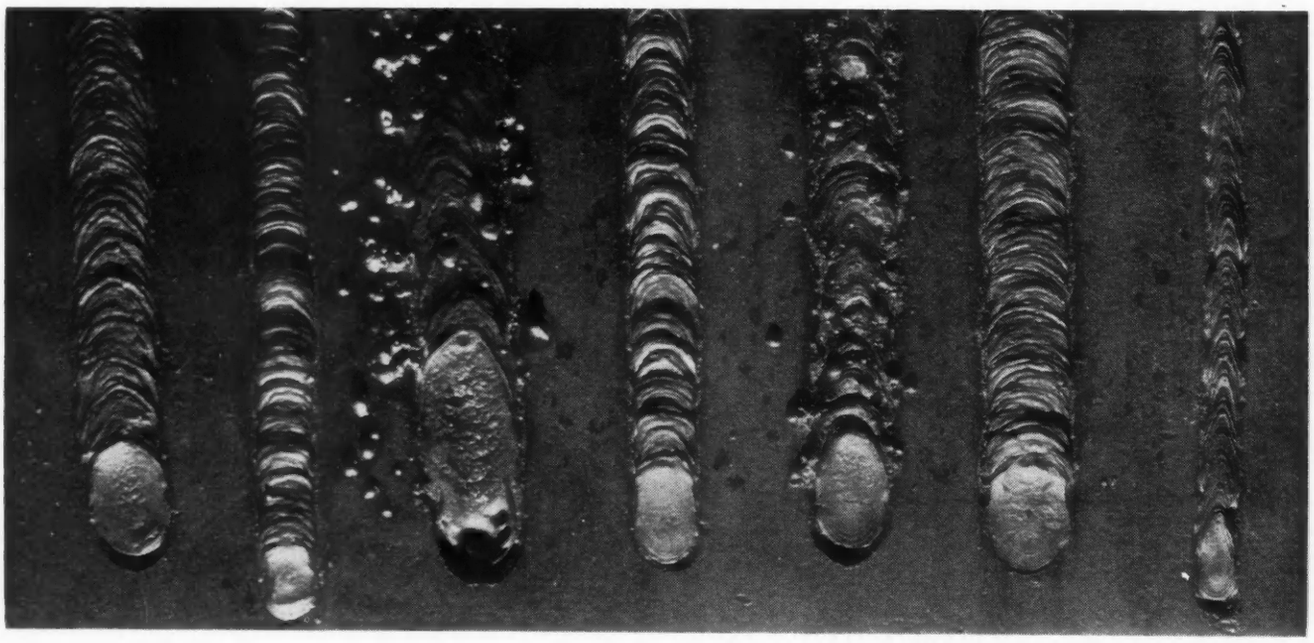
1. Use enough current to obtain desired penetration. Weld slowly.
2. Calculate electrode penetration properly
3. Select electrode according to welding groove size
4. Leave proper free space at bottom of weld

• • •

Guides to Technique *(below)*

A. Current, voltage, speed normal
B. Current too low (narrow build up)
C. Current too high (spatter)
D. Voltage too low
E. Voltage too high
F. Speed too slow
G. Speed too high

A B C D E F G



Magnetic Blow

Cause

1. Magnetic fields cause the arc to deviate from its intended course.

Remedy

1. Use steel blocks to alter magnetic path around arc
2. Divide the ground into parts
3. Weld in same direction the arc blows
4. Use a short arc
5. Locate the ground properly on the work
6. Use AC welding

Brittle Welds

Cause

1. Wrong electrode
2. Faulty preheating
3. Metal hardened by air

Remedy

1. Preheat at 300 to 500 deg. F. if welding on medium carbon steel or certain alloy steels
2. Make multiple layer welds
3. Anneal after welding
4. Use austenitic electrodes for increased weld ductility

Welding Stresses

Cause

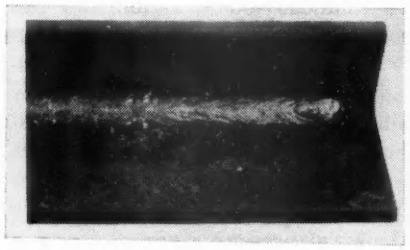
1. Faulty welds
2. Faulty sequence
3. Rigid joints

Remedy

1. Allow parts to move freely as long as practical
2. Make as few passes as practical
3. Peen deposits
4. Anneal according to thickness of weld
5. Move parts slightly in welding to reduce stresses

• • •

Spatter



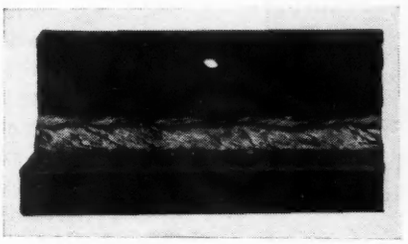
Cause

1. Arc Blow
2. Current too high
3. Arc too long
4. Faulty electrodes

Remedy

1. Whitewash parts in weld area
2. Adjust current to speed
3. Adjust to proper arc length
4. Lighten arc blow
5. Pick suitable electrode

Undercutting



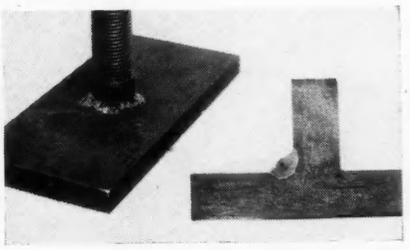
Cause

1. Faulty electrode manipulation
2. Faulty electrode usage
3. Current too high

Remedy

1. Use a uniform weave in butt welding
2. Avoid using an overly large electrode
3. Avoid excessive weaving
4. Use moderate current; weld slowly
5. Hold electrode at safe distance from vertical plane in making horizontal fillet weld

Porosity



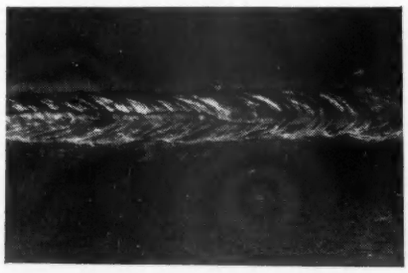
Cause

1. Short arc
2. Insufficient puddling time
3. Impaired base metal
4. Poor electrode

Remedy

1. Check impurities in base metal
2. Allow sufficient puddling time for gases to escape
3. Use proper current
4. Weave weld to eliminate pin holes
5. Use proper electrode for job
6. Hold longer arc

Cracking



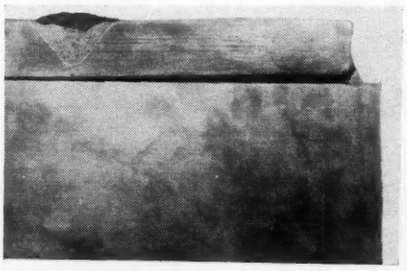
Cause

1. Wrong electrodes
2. Weld and parts sizes unbalanced
3. Faulty welds
4. Faulty preparation
5. Rigid joint

Remedy

1. Eliminate rigid joints
2. Heat parts before welding
3. Avoid welds in string beads
4. Keep ends free as long as possible
5. Make sound welds of good fusion
6. Adjust weld size to parts size
7. Allow joints a uniform free space

Distortion



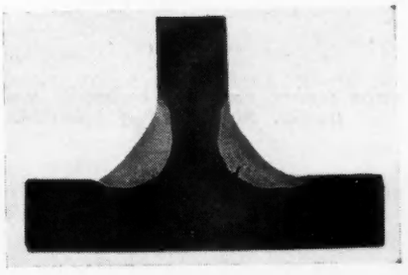
Cause

1. Uneven heating
2. Improper sequence
3. Deposited metal shrinks

Remedy

1. Tack or clamp parts properly
2. Form parts before welding
3. Dispose of rolling or roaming strains before welding
4. Distribute welding to prevent uneven heating
5. Examine structure and develop a sequence.

Poor Fusion



Cause

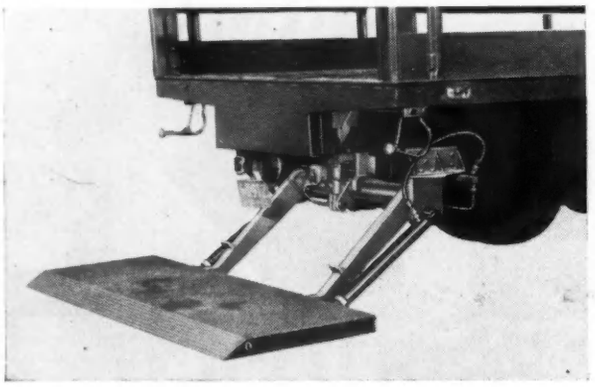
1. Wrong speed
2. Current improperly adjusted
3. Faulty preparation
4. Improper electrode size

Remedy

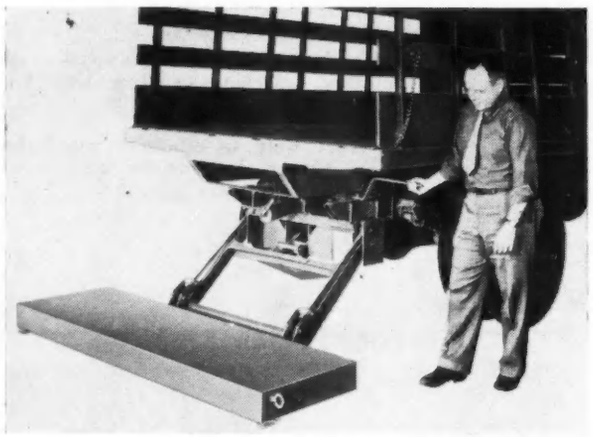
1. Adjust electrode and vee sizes
2. Weave must be sufficient to meld sides of joint
3. Use proper current to allow deposition and penetration
4. Keep weld metal from curling away from plates

HYDRAULIC TAILGATES

Slash Loading Cost by 30%



The Marion Hydrogate is simple, trouble-free, easily-installed and carries a 2000-lb rating



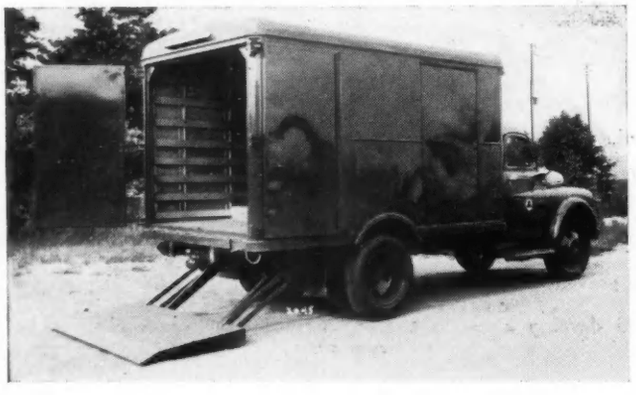
Cemco makes available hydraulic units for all sizes of trucks. Simplicity of operation is featured

AT A TIME when fleet operators are experiencing rising labor costs, high equipment expense and the exigencies of tighter schedules, the introduction of mechanical loaders in the form of hydraulically-operated tailgates has been enthusiastically heralded from coast to coast. Fleetmen in a wide variety of hauling operations are examining this device with an eye toward equipping several or all of their vehicles with a loader that will save time, loading accidents and manpower. Cost-conscious operators will want to look over the industry to select equipment of this type designed to fit their requirements.

Speed, safety and convenience are claimed for this type of device. Stand-by loading and unloading time can be cut from 30 to 50 per cent with such a loader, while operators report a reduction of up to 30 per cent in loading costs through reduction of manpower and through speed of loading. Cases have been noted where fleetmen formerly using three men in loading operations, have been able to cut personnel to one. It should be noted, too, that fragile freight can be handled much more carefully through power loaders. Freight damage is cut appreciably, and accidents to personnel can be reduced to a minimum when tailgate loaders are employed.

The elevating tailgate has two functions: to raise the cargo to the level of the body floor, and to lower the cargo from the floor to ground level or any point which the operator may desire. Generally, one man can handle the lift, the operating controls being mounted at the rear of the vehicle, where the operator can position the load from ground level. If necessary, the driver can ride the gate to direct operations. Control levers can be installed

The Daybrook Power Gate is made in several sizes and models for raising and lowering up to 3000 lb



Fruehauf gates, like the others, can be operated by one man from the ground level or load as required

Elevating tailgates can be installed on any size truck, to provide speed, safety and economy. Loading time is cut from 30 to 50%, personnel is held to minimum, accidents are reduced

on either, or both sides of the body to meet individual requirements. When the desired height is reached, a safety lock comes into operation to eliminate the tailgate dropping should the hydraulic system fail.

Manual closing of the tailgate requires little effort as it is assisted by counter balance springs. Thus it can be raised by hand without the engine running.

Generally speaking, gates now on the market consist of a rectangular platform, mounted to the frame of the truck through articulating arms of box or angle iron members. The top of the platform may be built of smooth sheet steel, diamond tread steel or wood framed with steel. Space bars on the bottom of the gate prevent possible injury to toes, and a beveled lip on the top of most units permits easy sliding or rolling of cargo onto the platform.

The platform is raised or lowered in a level position between the ground and the top of the truck body floor. After it reaches the floor level, it can be turned to a vertical position, so that it acts as a regular tailgate. Unit is operated by a hydraulic pump, powered by a transmission power take off. Oil is transmitted to and from the pump to the tailgate cylinder assembly by a single high pressure hose. Oil pressures do not normally exceed 2500 lb psi. Lift may be accomplished through either one or two hydraulic cylinders mounted between the tailgate base and the lower section of the platform. A control valve controls the flow of oil into and out of the hydraulic cylinder and permits the operator to start, stop and determine the speed of the lift. Average time required to raise the load is 10 sec.

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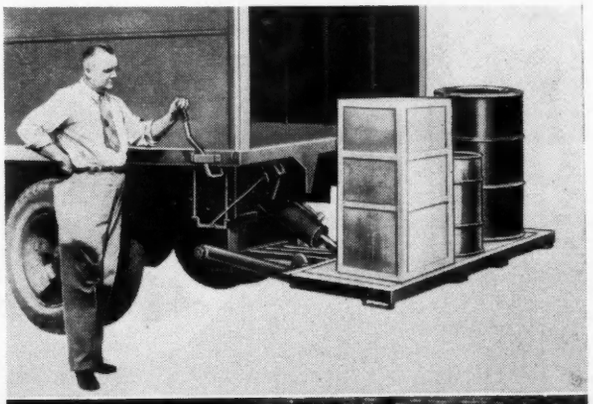
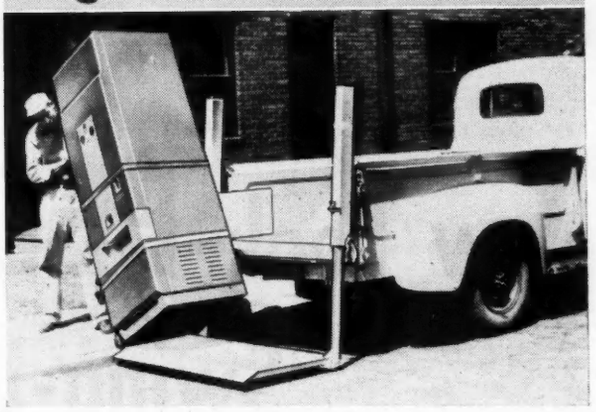
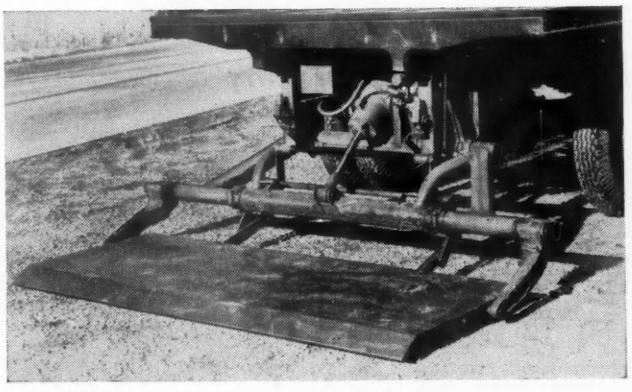


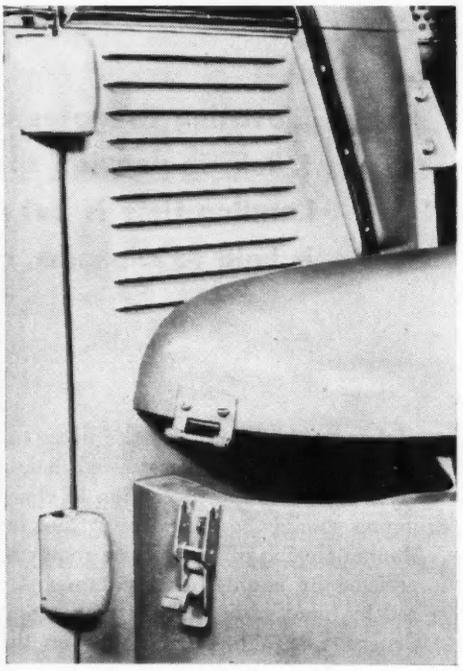


TOP. Anthony's 2000-lb Lift Gate. ABOVE. Model 2000 designed especially for ½ and ¾-ton jobs

The Heiloader, by Heil, features a platform 84 x 34 in., a 50-in. travel, capacity of 2000 lb



Hercules Load-N-Gate is available in four standard platforms, is light in weight but ruggedly built



ABOVE Clasp locks "swing-lift" fenders securely to body. Release of clasp permit the fenders to be swung up

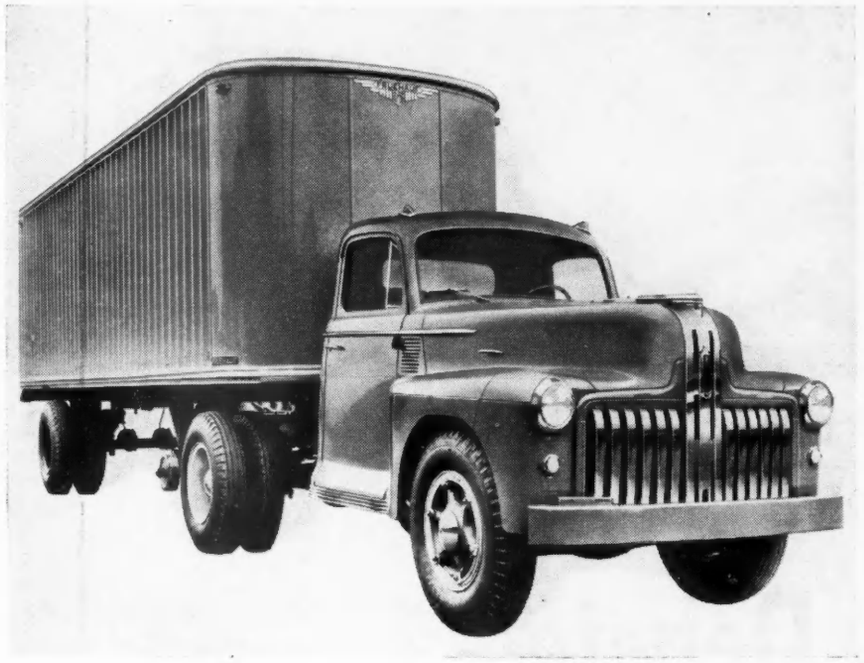
LEFT Both "swing-lift" front fenders raise on concealed hinges simply by releasing clasp, thereby exposing engine, accessories, steering mechanism and front brakes for quick service

New Look FEDERALS Feature "Swing-Lift" Fenders

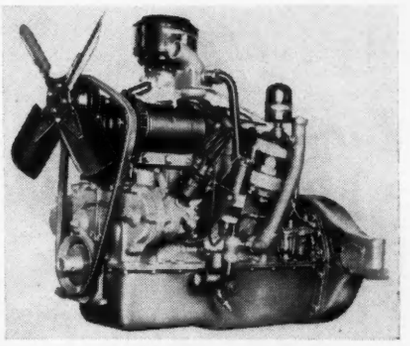
Streamlined "Style Liner" series with newly designed cab accents accessibility. Narow corner posts, one-piece curved windshield provides improved visibility

Condensed Specifications—"Style Liner" Series

Basic Series	1800	2500	2900	3000
Wheelbase Range, in	136-250	136-250	136-250	136-250
Gross Vehicle Weight, lb	17,000	19,000	21,500	21,500
Gross Combination Weight, lb	31,000	35,000	38,000	42,000
Engine Displacement, cu-in.	263	282	320	339
Hp at R.P.M.	96-3000	102-3000	114-3000	129-2800
Torque at R.P.M.	190-1600	212-1400	250-1400	272-1400



Tractor in the 3000 Series, powered by a 339 cu-in., 131-hp. Federal-Hercules engine. GVW for this unit is 21,000 lb, G.T.W. is 42,000 lb



TOP One of four high torque engines offered in new Federal series. ABOVE Hinged push button panel on instrument panel shown in open position

A NEW SERIES of "Style Liner" light and medium-duty trucks with GVW ratings from 17,000 to 21,500 lb with engines ranging from 102 to 131 hp has just been introduced by the Federal Motor Truck Co. The streamlined, "new look" models feature improved accessibility, through "Swing-Lift" hinged front fenders and easily removed fender splash shields. The push button panel on the instrument board is hinged in the new design. Multiple fuse blocks, wider track front axles, shorter wheelbases, longer springs, larger frames are additional mechanical features.

Accent on Accessibility

PARAMOUNT feature of the "Style Liner" is the new "swing lift" front fenders designed to raise on a concealed hinge simply by releasing a clasp. Accessibility to the engine, accessories, steering and front brakes is thereby expedited. In a few moments the fender splash shields can be removed for complete accessibility. With this new type construction removal of the radiator core can be accomplished in less than 10 min.

A hinged push button panel on the instrument board gives full access to the electrically operated gages. All electrical circuits are individually fused and fuses are located on a multiple fuse block in the engine compartment on the dash. Wires are colored and circuits are marked on the fuse block for tracing of wiring.

Large tool and battery compartments have been installed in stepwells on each side of cab. The battery can be serviced from a panel in the cab floor and removed or installed through the stepwell panel.

Cab Characteristics

THE "STYLE LINER" cab, wider and roomier with built-in slip-free running boards, is 66½ in. wide at shoulder height and 77 in. wide at the bottom. It is of all-steel welded construction with a one-piece top.

Driver vision has been increased 60 per cent through use of a one-piece, full width, curved safety plate glass windshield. Corner support posts have been made stronger but are narrower for increased visibility.

Cab seats are 59 in. wide and are upholstered in Naugahyde covering. Seating comfort has been obtained through use of special helical spring cushion construction and improved weight distribution. Seat cushions are of the two-piece interchangeable type and have a thick one-piece back. Seats are heavy-duty tubular frame constructed, fully adjustable.

Other cab features include chrome trimmed instrument panel; large easy-to-read, indirectly lighted dials and controls; push button starter and provisions for radio and clock.

The cab has two screened top ventilators, double seal insulation, chrome hardware, draft-free window ventilators, sun visor, dual arm rests, dual electric windshield wipers, large dome light and dual cab marker lights. Cab doors built with three heavy-duty hinges, are equipped with a special hold-open device. Air conditioning with heater and defroster and thermostat control is also available. Sheet metal is constructed as an integral unit and rubber mounted on the frame to prevent transmitting of frame shocks into the structure.

Chassis Details

EIGHT wheelbase lengths are offered in the new "Style Liner" series ranging from 126 in. to 250 in.

(TURN TO PAGE 104, PLEASE)

Toll Road Panel included (l. to r.) Toll Antagonists R. Jorgensen of the Connecticut State Highway Dept. and E. Carroll Bean, former master of the Maine State Grange; Moderator G. A. Vahlkamp of the Automobile Club of Missouri; Toll Proponents Col. E. R. Needles, pres., American Road Builders Assn., and W. B. Getchell, Jr., of Maine Turnpike Authority.

Toll Road Debate

Highlights Highway Transportation Congress

Despite briefs of toll road proponents, delegates said "No!" The Federal role in highway financing and full support for uniform laws also on docket

By Bart Rawson
Editor, Commercial Car Journal

IRRESPECTIVE of the many thought-provoking papers and stimulating panel discussions on controversial subjects presented at the Third Biennial Highway Transportation Congress held recently in Washington, the most significant phase of the program lay in the fact that *all* types of highway users were represented.

Sponsored by the National Highway Users Conference, the Congress provided the setting for free discussion of common problems between more than 1000 state and national groups representing truck, bus and passenger car interests, farm organizations, motor vehicle manufacturers, petroleum producers, state and Federal highway officials and, in short, all who have an interest in America's highway system. On this fact alone, the NHUC should be highly commended. The fact that the program provided much stimulating material for all in attendance may be regarded almost as a bonus.

(NOTE: See also Editorial on page 20.)

Of perhaps greatest interest to COMMERCIAL CAR JOURNAL readers was the debate on toll roads, particularly since relatively few highway users know just how they stand on this highly debatable subject. A photograph of the panel members, together with their complete identification and position on the question, appears at the top of the page. Thus, without further identification, here are the principal arguments advanced for and against the toll road method of highway financing.

Toll Advantages

TOLL charges provide a method of building and financing needed highways quickly.

Most states prohibit bond issues for public highways, and most state legislatures are reluctant even to submit bond issues to the public. Nobody wants higher taxes which such issues would necessitate.

There is no such thing as a "free" highway. The toll system provides a method of payment as you go.

Almost all states are woefully short of necessary highway funds.

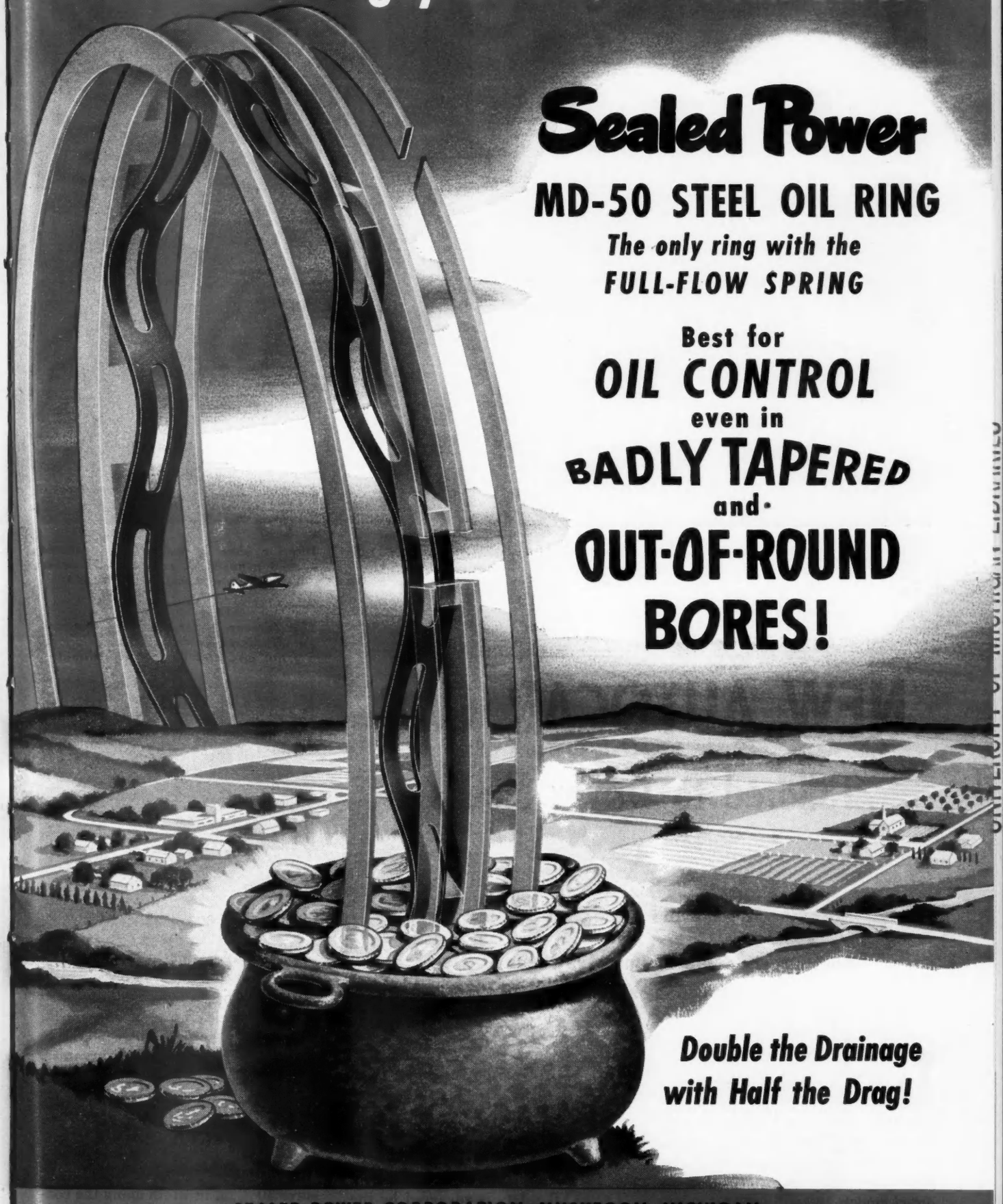
The recently authorized New Jersey Turnpike is an example of speedy construction made possible by toll charges. The entire 118-mile turnpike is expected to be built in two years at a cost of $200,000,000. New Jersey has available only $25,000,000 a year for new construction in the entire state. Thus, the toll road appears to be the best solution.

Are toll roads identical in nature to toll bridge and tunnel crossings? Toll road proponents say they are and that these latter projects have been highly successful. (Antagonists say they are not comparable. See disadvantages below.)

Most public highway funds accrue from legislative allotments, often side

(TURN TO PAGE 144, PLEASE)

Start collecting your Pot of Gold Now!



Sealed Power

MD-50 STEEL OIL RING

The only ring with the
FULL-FLOW SPRING

Best for
OIL CONTROL
even in
BADLY TAPERED
and
OUT-OF-ROUND BORES!

Double the Drainage with Half the Drag!

SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

GET IT FROM YOUR JOBBER

Sealed Power Piston Rings

BEST IN NEW TRUCKS — BEST IN OLD TRUCKS

Open side ventilator showing rain baffle which allows adequate cab ventilation under all weather conditions

Interior view of cab which features curved windshield, raised instruments on dash and comfortable seating

The Autocar Driver Cab, now standard on all diesel models, has redesigned front end and curved windshield

NEW AUTOCAR CAB

Tailored to Driver Needs

Safety and comfort accented by sharply curved windshield, improved ventilation

A NEW all-welded, all-steel cab with a curved windshield, relocated instruments, improved insulation, ventilation system and seating, has just been introduced by The Autocar Co. It is now standard on all Autocar diesel models and will be standard on all but the lighter models, by fall.

Tailor-made to meet driver needs as stated in a year-long survey, the Autocar Driver Cab has been enlarged and the fenders, radiator shell, grille, and hood have been redesigned to harmonize with it.

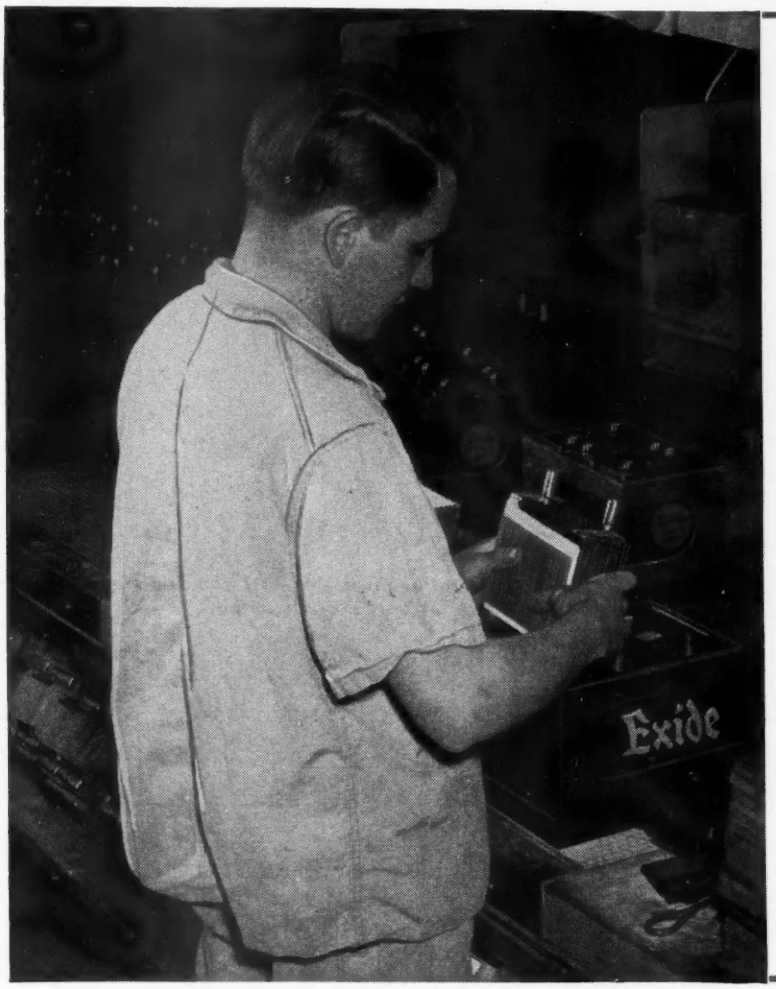
Windshield Details

DRIVER safety is advanced by the variable curved windshield which is said to allow 56 per cent more driver vision.

The curved windshield allows the corner posts to be moved back several inches to where they are no longer a visual obstacle. For fourteen inches right and left from the center, the windshield has very little curvature. But from thereon to the corner posts it curves out and back to a 20-in. radius and the driver can then look straight up and down the intersecting highway without any cab obstruction.

Each half of the windshield measures 30½ in. in width along the contour and 19 in. in height at the corner posts. The angle and curve of the

(TURN TO PAGE 182, PLEASE)



PRETTY HARD TO GET ANYTHING MORE INSIDE AN

Exide BATTERY

You'll find Exides are packed top-high with every good quality you expect in a battery. Dependable performance, long service life, economy . . . all are there. For Exide standards are high, and must be met . . . in full. Carefully controlled tests assure you they are met.

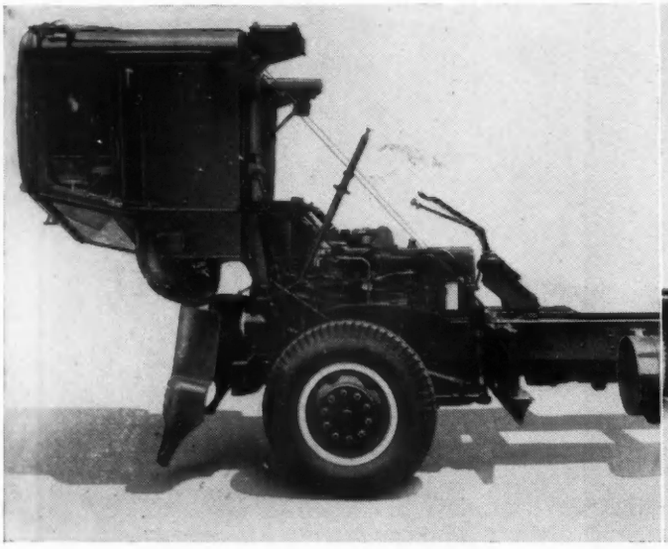
This testing is rough and rugged, for Exide Batteries are built for rough and rugged service . . . to give you dependable starting, day after day, in all weathers . . . and for a long, long time. Also, you can always be sure that with Exides in your trucks, you can count on *extra low cost per mile of operation.*

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto
"Exide" *Reg. Trade-mark U. S. Pat. Off.*

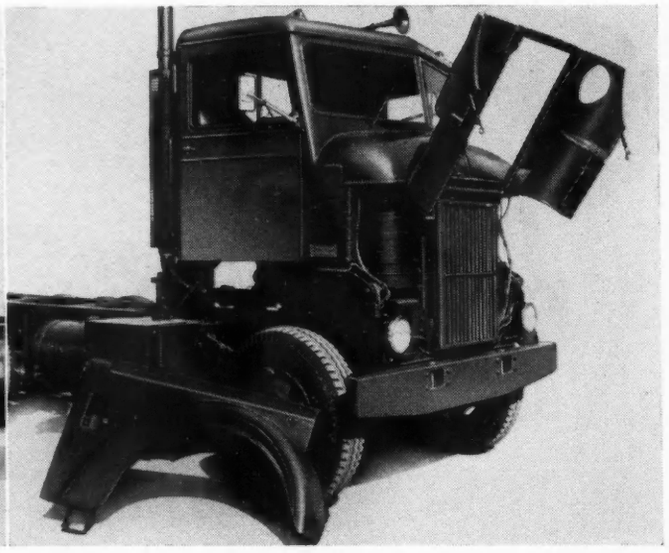
One of the service-proved features that make Exide outstanding for motor truck service.

Heavy, oversize plates giving greater capacity ...doubly insulated for longest life.

1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950



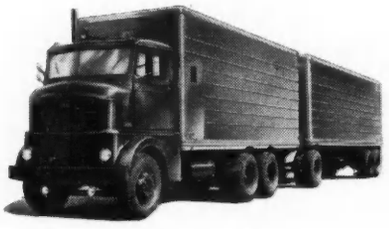
For engine removal, entire cab tilts forward after disconnecting flange, removing seats, floor boards, steering wheel



Cab front raised and fenders removed showing maximum accessibility for ease in servicing the engine and accessories

Accessibility Keynote in PETERBILT'S NEW C.O.E.

Aluminum or steel chassis construction; single and dual-drive models offered with a choice of diesel, butane or gas engines



AVAILABLE IN either aluminum construction or steel construction, the new cab-over-engine models added to the conventional heavy-duty trucks manufactured by the Peterbilt Motors Co., provide maximum accessibility with hinged cab front and fenders, and a tilting cab. With either single or dual drives, a choice of diesel, gasoline or butane engines may be had.

In the aluminum models, this metal has been used wherever practicable to effect maximum weight saving. The large heavy-duty frame is of extruded, heat-treated aluminum alloy. The frame castings, rear axle housing, hubs, brake shoes, wheels and entire cab are made of aluminum. By using this light-weight construction, approximately 1500 to 1750 lb were said to be saved on one particular coe model.

Accessibility for Maintenance

THE CAB front, hinged at the top, is raised by unhooking two large hood fasteners. This exposes the entire front end of the truck, for servicing, adjusting or repairing the radiator, radiator shutters, air cleaner, all electrical wires which run to junction blocks, and oil, water and fuel lines which run to a centrally located manifold.

The front fenders are mounted on heavy-duty, post-type hinges. After removing one cap screw, they can be either swung aside or removed to expose the fan belts, foot-brake valve, steering gear and all accessories mounted on both sides of the engine. By removing an additional small en-

(TURN TO PAGE 214, PLEASE)

2-ton shown with 15-foot van body—1½-ton also available

New Studebaker ideas pay off in savings for truck operators!

YOU find important improvements in design that cut your operating costs, almost everywhere you look in a Studebaker truck.

The massive, pressed-steel Studebaker frame, for example, extends well beyond the rear axle for better load protection and longer body life.

The front of the frame is reinforced with a rigid, twist-resisting K-member—an exclusive new Studebaker method of strengthening the truck's forward structure. This also serves to provide extra support for the engine's front mountings and the steering gear.

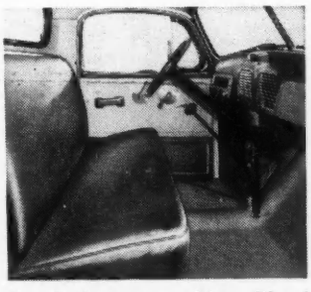
Stop in at a nearby Studebaker showroom and get the complete "inside story" of Studebaker's progressive and resourceful truck engineering.

See for yourself why Studebaker trucks are saving sensationally and selling sensationally. This is Studebaker's 99th year of service on America's hauling needs.

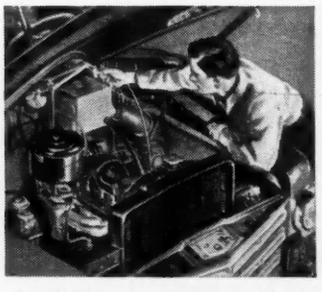
STUDEBAKER TRUCKS

Noted for low-cost operation

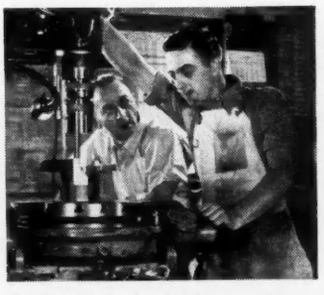
"Tops-in-thrift" engines of the truck world! Two great Studebaker truck engines—the Econo-miser and the Power-Plus—deliver exceptional gas mileage, excel in horsepower and torque.



A cab that every driver likes! Steps are enclosed inside doors. Wide seat has Adjusto-Air cushion. Doors close securely on tight-gripping rotary latches. Foot-controlled cab ventilators.



Just lift the hood! Everything's easy to get at! No standing on a box to service! No stooping under the dash! Studebaker trucks come in ½ ton, ¾ ton, 1 ton, 1½ ton and 2 ton models.



Built to last by father-and-son teams and thousands of other conscientious craftsmen, Studebaker trucks really stand up. Stand-outs in staying power!

Studebaker, South Bend 27, Indiana, U. S. A.

New Truck Registrations by Makes by States*

STATE		Auto-car	Brock-way	Chev-rolet	Dia-mond T	Divco	Dodge	Fed-eral	Ford	FWD	GMC	Inter-na-tional	Ken-worth	Mack	Pon-tiac	Reo	Ster-ling	Stude-baker	White	Willys	All Others	Total
Alabama	March	1		688		4	144		657		132	114		18	1	3		111	19	45	2	1,999
	3 Mos.	2		1885	4	9	497	3	1682		432	341		40	6	8		279	44	124	4	5,360
Arizona	March			197	1	1	40		167		67	59		3		1		22	4	13	4	579
	3 Mos.			441	2	3	131		419		134	102	5	4		2		68	7	36	7	1,361
Arkansas	March																					
	3 Mos.																					
California	March	8		2433	32	49	294	1	1849	3	480	393	6	20	7	16	7	284	45	89	21	6,037
	3 Mos.	18		5590	64	111	1049	10	3999	3	1132	926	21	48	19	28	22	694	69	214	63	14,080
Colorado	March			434	1	9	66	1	288		77	94	1	4				80	2	28	5	1,068
	3 Mos.			1322	13	11	260	3	741		244	289	1	10		3		189	9	100	9	3,204
Connecticut	March	4	7	230	8	6	36	8	261		57	61		15	2	5	8	30	14	16	7	775
	3 Mos.	12	15	525	15	16	145	13	474	1	125	135		45	4	6	8	57	29	37	9	1,671
Delaware	March		2	80	2		13		107		18	12			2			8		2	1	247
	3 Mos.	3	5	235	3	4	49		273		43	56		2	4	1		26	12	7	4	727
District of Col.	March			79	2		26	1	44		25	29		2	1			2		3		214
	3 Mos.	7		188	5	13	58	2	118		45	50		3	2	4		8	3	6	2	514
Florida	March	1	1	835	13	6	230	1	788		147	154		36	4	13		188	14	79	4	2,494
	3 Mos.	1	1	1503	29	23	528	7	1493		279	310		95	6	22		359	36	142	8	4,842
Georgia	March	1		774	9	5	212		902		192	247		20	4	10		134	39	37		2,586
	3 Mos.	1		2775	23	11	916	2	2798	1	669	752		65	9	31		536	89	168	7	8,853
Idaho	March			168	2		37	1	115	1	46	56	3	3		2		33	6	21	1	495
	3 Mos.			379	5		103	2	264	2	112	122	5	4		4		91	9	63	13	1,178
Illinois	March	6	1	1645	43	16	457	3	1356		395	672		28	12	17	1	220	70	69	6	5,017
	3 Mos.	18	1	3599	104	37	1182	7	2841	1	732	1397		71	21	35	1	474	153	115	18	10,807
Indiana	March	1		863	6	3	196	1	914		160	338		10	5	5		168	42	27	8	2,747
	3 Mos.	1	2	1788	14	12	512	4	1833	1	368	713		24	10	11		353	77	70	20	5,813
Iowa	March			1052	11	11	159		721		123	310		8	2	9		88	8	19	1	2,522
	3 Mos.			2292	30	17	506	1	1662		309	751		22	3	18		254	25	42	3	5,935
Kansas	March			759	5	2	107		494		162	186			2	4		69	5	20		1,815
	3 Mos.			1533	11	8	284		1135		317	433			7	15		145	13	43	1	3,945
Kentucky	March			508	11		92	1	397		126	138		4	4	4		61	17	46		1,411
	3 Mos.			1813	25	10	380	4	1321		423	435		6	6	10		206	29	132	2	4,802
Louisiana	March	1		553	9		131	2	516		203	116		4	3	1		105	7	26	5	1,682
	3 Mos.	1		1538	16		480	3	1497		483	329		10	6	4		310	15	86	9	4,767
Maine	March	1	2	268			55		135		75	68		8	2	3		41	4	27		689
	3 Mos.	4	6	744	3	2	206		445		256	245		36	8	6		114	12	63	3	2,153
Maryland	March		5	276	4	6	71	2	199		71	54		16	1	3		27	12	13	2	762
	3 Mos.	1	16	785	10	11	251	15	547		160	155		36	7	11		79	47	37	6	2,174
Massachusetts	March	19	14	429	12	9	121	1	393		75	127		39	12	5	7	64	26	13	1	1,367
	3 Mos.	40	31	989	35	20	479	5	844		220	279		82	20	24	9	142	48	40	5	3,312
Michigan	March	3	1	1351	14	19	170	6	1365		261	281		19	1	14		92	35	17	6	3,657
	3 Mos.	7	1	3398	25	49	695	19	3052	1	573	611		40	4	41		261	65	48	13	8,903
Minnesota	March			728	14	6	144		539	1	117	280	3	3	8	3		127	14	19	2	2,008
	3 Mos.	1		1787	28	15	450	7	1382	9	276	606	5	17	12	6		371	34	50	26	5,082
Mississippi	March			640	1		125	1	577		223	132		4	6	2		101	9	25	3	1,849
	3 Mos.			1651	5		399	3	1250		518	306		13	10	8		270	12	69	4	4,518
Missouri	March	1		1120	2	4	211	1	711	1	237	232	1	12	2	3		135	17	31		2,721
	3 Mos.	4		2492	15	30	573	2	1638	1	520	561	3	29	2	15		307	73	75	22	6,362
Montana	March			270	3		52		146		48	100		2		3		59	1	48		732
	3 Mos.			500	9		123	2	294	1	98	191	1	3	1	7		96	4	124		1,454
Nebraska	March			471	12		73		465	1	89	165		2	1	5		72	4	40	6	1,406
	3 Mos.			1292	39	2	258		1058	7	196	405		3	3	12		189	15	104	7	3,590
Nevada	March			50	1		3		32		24	8						8		3		129
	3 Mos.			116	1		20		78		50	20			1			19		15	1	321
New Hampshire	March																					
	3 Mos.																					
New Jersey	March	11	26	782	16	11	210	11	792	1	211	216		53	23	8	1	91	43	42	4	2,551
	3 Mos.	20	61	1602	75	49	574	19	1590	5	498	469		124	57	15	3	188	83	92	12	5,536
New Mexico	March	1		208	1		29		96	1	57	19	2	2				41	6	17	1	481
	3 Mos.	1		710	1		151		304	1	192	91	4	6		1		140	8	47	7	1,664
New York	March	33	71	1574	65	20	481	4	1077	3	386	431		119	15	28	5	140	100	85	15	4,602
	3 Mos.	109	201	4226	296	100	2008	48	2812	22	1279	1773		575	45	131	23	562	329	367	84	14,988
North Carolina	March	5		817	3	7	137		716		143	138		59	1	1		113	20	16	4	2,180
	3 Mos.	19		1958	12	10	508	5	1927		369	361		173	5	9	2	313	57	53	18	5,799
North Dakota	March			112	1		30		64		19	50						13		7		296
	3 Mos.			379	3		114	2	293		70	206		3	1	1		69		48	3	1,192
Ohio	March	7	3	1785	53	42	293	10	1592	1	340	567		42	15	36		187	131	44	5	5,153
	3 Mos.	28	5	3738	88	78	973	28	3476	3	765	1219		153	61	70		409	295	119	7	11,515
Oklahoma	March			645		4	120		450	1	166	153		2	3	4		65	16	18	1	1,648
	3 Mos.	1		1827	5	16	442		1359	2	425	424		22	7	20		210	34	79	3	4,876
Oregon	March			642	9	4	124	1	470		145	145	10	12		2		56	10	34	10	1,674
	3 Mos.			919	14	8	222	1	683		216	215	11	14		4		98	11	78	16	2,508
Pennsylvania	March	22	44	1512	45	9	421	7	1331		350	564		99	18	27	2	159	75	65	8	4,758
	3 Mos.	42	122	3347	81	23	1279	20	3000		783	1147		233	39	78	5	374	179	157	24	10,933
Rhode Island	March	1	3	80	1		27		57		18	17		4	1	2		9	2	1		223
	3 Mos.	7	4	196	3	5	94	1	153		46	75		18	6	6	1	28	10	8	2	663
South Carolina	March	1		351	1	1	76		348	1	81	59		13	2	2		47	9	4	3	999
	3 Mos.	2		970	3	3	281		898	1	229	172		26	4	2		160	26	22	3	2,802
South Dakota	March			209	5		39		164		43	118	3					22	2	28		633
	3 Mos.			510	26		132	2	425	3	93	269	11	1	3	1		80	4	69	4	1,633
Tennessee	March																					
	3 Mos.																					
Texas	March	3		2739	16	3	578	4	2184		776	519		28	10	4		385	54	117	8	7,425
	3 Mos.	12	1	7764	38	19	2217	9	6274		2170	1478	5	72	23	24		1130	118	439	33	21,826
Utah	March			201	4	4	27		116		73	42	2	4	1	1		16	2	13	10	513
	3 Mos.			422	14	7	86		244	1	123	99	4	10	1	4		36	5	38	16	1,116
Vermont	March		2	114	1	2	79		76		62	57			1	4		15		28	1	442
	3 Mos.		3	199	1	3	123		132		92	103			1	5		33	1	36	4	736
Virginia	March	5	3	707	2	8	151	7	517		159	104		29	2	1		78	10	19	1	1,803
	3 Mos.	9	4	1761	4	19	439	7	1376		390	283		54	6	7		224	50	75	7	4,717
Washington	March	1		390	5	3	75		256		89	119	14	10	3	1	1	48	2	25	21	1,063
	3 Mos.	2		879	9	15	223		571		210	300	17	30	5	4	1	95	12	63	30	2,466
West Virginia	March		1	271	1	2	83		269		73	53		10		1		18	5	58		845
	3 Mos.		1	714	1	4	240	3	696		174	144		23	5	3		60	17	143	2	2,230
Wisconsin	March	2		726	4	7	117	2	596	7	102	235		5	3	7	1	94	6	29	5	1,948
	3 Mos.	4		1645	14	18	384	5	1224	20	255	547		31	11	14	1	231	24	66	24	4,518
Wyoming	March			117	1		38		70		28	35	1		1	1		7	2	21		322
	3 Mos.			291	4	2	83		147		89	81	1	1	1	1		37	3	54		795
Total	March, 1950	139	186	30833	452	283	6400	79	25379	22	7010	8064	46	771	181	261	33	3893	909	1445	181	86,567
Total	March, 1949	184	124	29405	509	315	9501	126	12996	37	6413	7398	42	485	10	388	13	4591	705	3662	386	77,270
Total	3 Months, 1950	380	481	76414	1230	794	21487	262	61582	86	17486	20153	96	2292	459	733	76	10560	2232	4128	569	221,471
Total	3 Months, 1949	536	421	74871	1516	833	25980	352	35601	113	15977	21852	106	1428	18	1094	52	12785	2069	10567	1209	207,380

* Data from R. L. Polk & Co.

Bendix Products Division

CREATIVE ENGINEERING

GEARED TO QUANTITY PRODUCTION

MORE AND MORE THE TREND IS TO

HYDROVAC

THE WORLD'S BEST PROVEN POWER BRAKE

When fleet operators all over the nation express an emphatic preference for a particular product, you may be sure this preference is based on operating efficiency and economy.

In the field of power braking, for example, the unrivalled popularity of Hydrovac* is the direct result of unmatched performance at the lowest possible cost.

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*REG. U. S. PAT. OFF.

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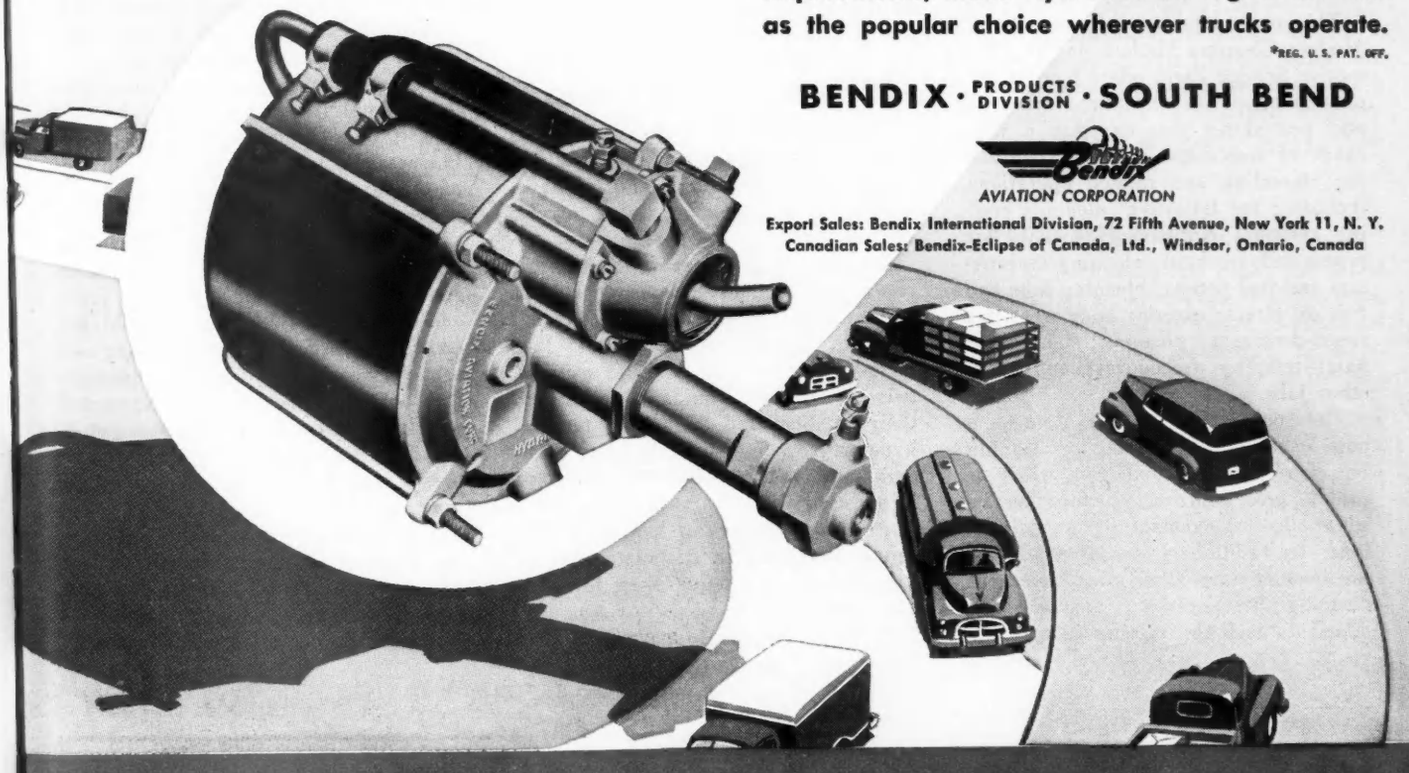
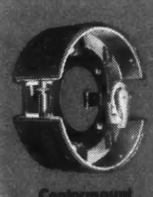




Centermount Emergency and Parking Brake

B-K® Power Braking System for Cargo Trailers

Bendix Hydraulic Power Steering

BUILDERS OF THE BASICS OF BETTER MOTOR VEHICLES

Bendix® Automatic Clutch and Gear Shift Control Systems

Bendix Vacuum-Power Gear Shifter

Bendix® Brakes for Buses, Trucks, and Passenger Cars

free PUBLICATIONS

A selected list of the latest literature — catalogs, pamphlets, charts—chosen to help fleetmen improve operation and maintenance.

FOR YOUR CONVENIENCE USE THIS POSTCARD

L28. Cleaning Booklet

This revised edition of the booklet, Modern Cleaning Methods in the Automotive Service Field offers helpful recommendations on specialized materials and procedures that expedite a wide range of automotive cleaning, degreasing, descaling and related operations, including the following: cleaning cooling systems; degreasing parts before repair and overhaul; cleaning carburetors and fuel pumps; cleaning lube and fuel oil filters; exterior body washing; steam-detergent cleaning; simplified paint-stripping procedures; and many other jobs.

The booklet also includes data on a new foam-washing method for cleaning bus, truck and car exteriors which is said to give improved cleaning results while effecting substantial material-savings. In addition, a special section of the booklet devoted to steam-detergent cleaning has been augmented with added data on the manufacturers' line of steam cleaning equipment. Free copies of this booklet may be obtained by writing L28 on the postcard.

L29. Time-Saving Tables

Every fleet will want this handy 25½ x 14-in. chart for posting on bulletin boards, under desk tops and on walls, where it can provide quick service for all.

A wealth of data is compiled into this chart, with decimal equivalents, weights and measures, decimals and sizes, being listed in easy-to-find style. Other lists include weights of rectangular sections, twist drill sizes, standard gages and their numbers and thickness, standard wrought iron pipe sizes, tin plate gages and Imperial standard wire gage sizes. In addition other charts provide dimensions across corners of hexagonal and square bars, British Association standard threads and letter sizes for drill diameters.

To save time, insure accurate dimensions and sizes, put this chart to work in your shop. Write L29 on the postcard for a free copy.

L30. Transportation Facts

Called The Highway Transportation Story, this 32-page booklet has been prepared to provide factual data on highway transportation and its effects on national life. Considering the fact that it is a 30 million dollar annual business, its influence has become one of the most important activities in the nation.

With pertinent facts, up-to-date data and convincing manner, the booklet shows how the motor truck has influenced the farmer, the worker, the consumer, education, national defense and nearly every modern U. S. institution. One job in every seven is connected with highway transportation, it is noted, and every state and many foreign countries supply materials for motor vehicles.

This booklet is chuck full of information which should be at the disposal of all truckers. Write L30 on the free postcard and arm yourself with the imposing figures compiled for your use.

Late Flashes on New Products

John T. Stanley Co., Inc., New York City, manufacturers of MOBO products, have come forward with an effective Waterless Hand Cleaner.

Snap-On-Tools Corp., Kenosha, Wis., announces a new ½-in. square drive socket wrench set with every unit redesigned.

The **South Bend Lathe Works** is now producing a hand feed turnstile operated bed turret as an accessory for their 16-in. swing lathes.

A new polishing process for automobiles has been developed by the **Du Pont Co.** It is called Du Pont Spray Glaze.

A newly improved type of light weight. flexible tubing is currently being offered by **Flexible Tubing Corp.,** Branford, Conn.

The **K-D Lamp Co.,** Cincinnati, Ohio, has just announced K-D's new Turn Signal Set, KD C725 10M for passenger cars, station wagons, and light weight vehicles.

Auto Brite, an automobile polish also used for refrigerators, ranges, bathroom fixtures and enameled surfaces, has been developed by the **Boyle-Midway Inc., Div. of American Home Products Corp.**

A new oil filter display rack, designated the R-50 merchandiser, exhibiting an actual muck-loaded, used element, is being distributed to dealers by the **Purolator Products, Inc.**

FOR YOUR CONVENIENCE USE THIS POSTCARD

New PRODUCTS

Illustrating and reviewing newest developments in parts, accessories, shop equipment and tools. For more information use the attached postcard.

P179. Door Handles

These die-cast door handles, used for cab or rear door locks, come in either a plain or chrome finish. The outside handle has the 5/16-in. square shank firmly imbedded in the head. The inside handle has a square receptacle and can be attached to any 5/16-in. square shank by a flush set screw. The Cleveland Hardware and Forging Co., Cleveland, Ohio.

P180. Hydraulic Valve

This hydraulic valve, named the hydrafold valve, has been designed for use on truck tanks for delivery compartment valving and dumping. The installation of these banked valves permits use of preset compartment selective systems which handle any desired grouping of compartments simultaneously. The valves are built with 2½-in. and 3½-in. flanged inlets. Light weight is secured by aluminum construction. Shand & Jurs Co., Berkeley, Calif.

P181. Pistons

For heavy duty service, Micro-X pistons of patented "Vanasil" are light and have the low expansion characteristics of cast iron. Heat conductivity is similar to other aluminum alloys. A feature is the "oil-absorbing" structure, which carries 2400 minute particles of diamond-hard silicon per sq in. of surface, embedded in a softer matrix of a microscopic porous structure. This is said to create a high resistance to scuffing, scoring and the silicon particles provide excellent bearing qualities and effect a reduction in wear in top ring-grooves and pin holes. Gillett Eaton, Inc., Lake City, Mich.

P182. Radiator Hose

A flexible radiator hose, made of alternate layers of synthetic rubber and heavy canvas fabric with a neoprene core, features flexibility, high bursting strength and resistance to deterioration from high heat, cleaning or antifreeze solutions, oil or grease. It is available in 19 different sizes from ¾ to 3½ in. I.D. Samuel Moore & Co., Mantua, Ohio.

P183. Bead Breaker

The self-oiling, heavy-duty tire bead breaker is built with a telescoping, piston-like handle that drives a special bead breaker between rim and bead and quickly frees the tire. According to the manufacturer, the tool is designed so that it cannot harm the tire or damage the rim. Jack P. Hennessy Co., New York, N. Y.

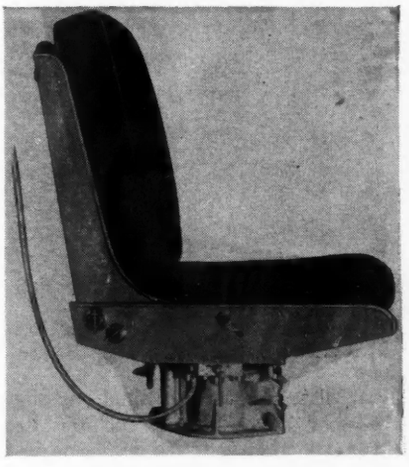
P184. Ridge Reamers

Ridge reamer No. 298 turns as a unit in the engine cylinder. Combined cutter and automatic stop is carbide-tipped and pivotally mounted. Cutting pressure against ridge is maintained by a coiled compression spring. Pivotal mounting insures against over-cutting. Range 2⅝ in. to 4 in.

Reamer No. 287 locates wholly within cylinder and is locked and centered by turning the central screw. Length of the expansion members insures a truly vertical shaft around which the cutter arm is rotated by means of a wrench applied to hexagon member. Range 2 to 3 in. Zim Mfg. Co., Chicago, Ill.

P185. Pneumatic Seat

The pneumatic seat gently raises and lowers with the motion of the vehicle. It can be moved backward and forward to insure proper leg length, raised or lowered for correct knee height and



turned to either side to facilitate getting in and out. The back cushion is adjustable and both seat and back cushions have slack adjustments. Pneumatic Seat Co., Rochester, N. Y.

(TURN TO PAGE 84, PLEASE)

New Product Descriptions

Continued from Page 83

P186. Headlight Testers

The new portable headlight tester Photoscope Model WX-45 can be calibrated to floor slope "in less than one minute by one man." The calibration to floor level is accomplished by a calibrated stand and aiming dials on the tester. Model WX-46 is for permanent installation.

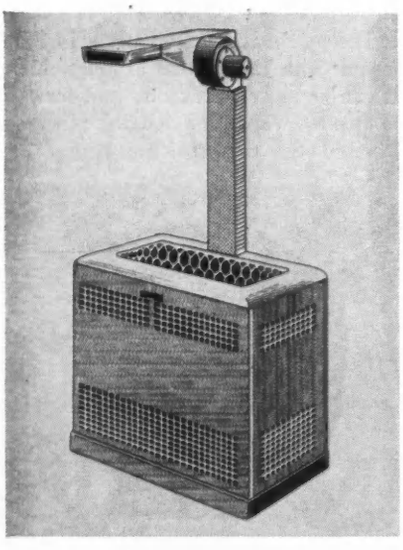
Two additional improved models of Rayoscope testers, portable and track type, measure high-low and left-right aim automatically. Weaver Mfg. Co., Springfield, Ill.

P187. Fire Alarm

The new fire alarm automatically sounds a penetrating, five-min warning when temperature reaches 135 degrees. It is completely automatic, self-contained wind-up unit, requiring no electricity. It gives instant positive warning at the outbreak of fire. Special heat fuses are available if temperature limits other than 135 degrees are required. Buffalo Fire Appliance Corp., Dayton, Ohio.

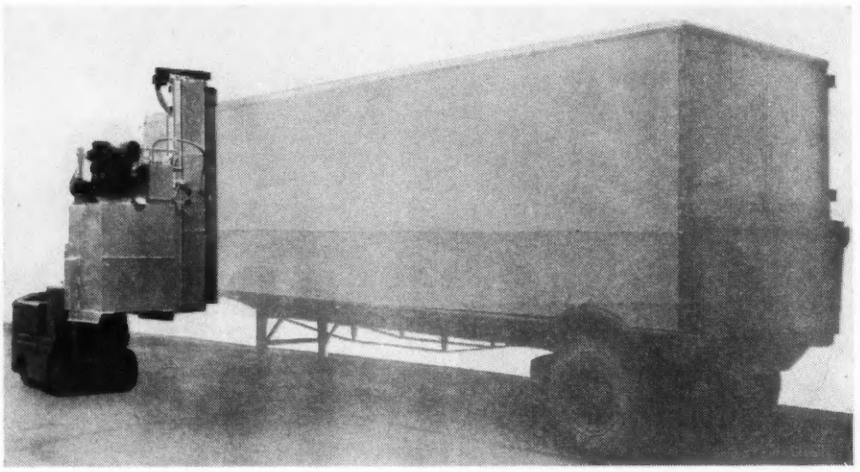
P188. Refrigeration Unit

This ice refrigeration unit is made with an intake duct which draws in warm air from the top or ceiling of the truck and circulates it through the ice



area. This cool air is forced out along the floor of the truck and the heat blanket is removed. Water ice is used as a cooling medium since its high moisture content will not cause dehydration. Because of the patented design of the unit, dirt, bugs, etc., are forced out through the drain pipe by the meltage runoff.

Units are supplied complete with motor, ducting, flue, etc., ready for immediate installation. No extra generator is required since they operate from the truck battery, using approximately the same amperage as ordinary truck heater. Available in five sizes for trucks from 150 cu ft up to 700 cu ft capacity, the units can be installed by any mechanic within one hour. Air Induction Corp., New York, N. Y.



P189. Portable Vehicle Washing Machine

A new portable, power-driven, rotary brush type washer, called the Wilson Washer, washes trucks, trailers and vans. Water is carried in a 250-gal tank and a Wisconsin air-cooled gas engine supplies power for the water pump, the hydraulic brush motor and the hydraulic cylinder for retraction of the brush. The 18-in brush rotates at 300 rpm as it contacts the vehicle. A 35-ft trailer can be washed in two minutes.

Weighing just under 2 tons, the unit can be installed on any 4000-lb capacity lift truck. A Yale & Towne Lift King #40, incorporating a Chrysler industrial gas engine, is used with the unit shown. Ross & White Co., Chicago, Ill.

P190. Window Ventilator

A new Truk-Vent model, window wing ventilator for installation on the new 1950 GMC Diesel Cabs, Series 700 to 900, can be installed with a screw driver outside regular cab windows. No hand cranks to turn. Just set it or adjust it and it stays put. It is made of safety glass framed in chrome-plated steel. Harben, Inc., Dallas, Texas.

P191. Hand Grease Gun

The "Red Cap," a new hand-operated grease gun eliminates air pockets, assuring a uniform, constant grease charge. A compression cylinder operates in conjunction with the grease plunger rod and forces the lubricant to the rear of the gun barrel, compressing and ejecting the grease simultaneously. The compression cylinder also serves as a grease indicator.

Operated with one hand, the unit will develop working pressure for all normal greasing needs. Overall length empty is 10 in.; loaded 14 in.; barrel length is 6 in. K. P. Mfg., Co., Minneapolis, Minn.

P192. Paint-Bond

For the treatment of iron and steel preparatory to painting, Kelite Poly-Kote eliminates the need for treating with chromic acid. It forms a dense smooth film of low porosity and high plasticity which cannot absorb paint excessively. The uniform crystalline coating can be controlled to provide a light or heavy paint-bonding film. Salt spray tests have shown resistance to rusting both on painted and unpainted work. Kelite Products, Inc., Los Angeles, Calif.

P193. Hydraulic Jack

This line of heavy duty hydraulic jacks from 1½- to 100-ton capacities can be used in vertical or horizontal positions. Jack handle must be removed from socket in order to open release valve. All models up to 12 tons have telescoping extension screw and all units are tested to 50 per cent overload. Star Jack Co., Chicago, Ill.

P194. Fork Lift

These new lift trucks are available in three sizes, 5, 7½, and 10-ton capaci-

(TURN TO PAGE 196, PLEASE)

Truck Specifications Table

OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY

COMMERCIAL CAR JOURNAL

Key to Definitions, References and Abbreviations

DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
G-H—Goodyear-Hawley type.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front, Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.
TW—Timken-Detroit—Wisconsin.
WG—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Wg—Wagner "hi-Tork"
Ws—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group
4R—Forward and rear units of Rear Axle Group.
—All wheels.

BRAKES—SERVICE

Location

4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

I—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.
V—Vacuum.
D or Dp—Dual Primary

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
Cc—Composite Front, Cast Iron in rear.
Ce—Centrifuse.
Cl—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type

C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.
Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating
T—Torque Tube

GEAR RATIOS

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

(Turn to Page 86, Please)

(Continued from Page 85)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number	Main Bearings: Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Speeds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES SERVICE: Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
	Available																															
1	(c.o.e.)....200	.....	.....	.....	15000	5500●	7.00/20D	8.25/20	Wau BM	6–3 5/8x4 1/4	263	5.9	178	78–2800	7–2 1/4x10 1/4		N	WG T9	4	Tim E100DPH	HF	H	•• –6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x 1/4	T
2	(c.o.e.)....225	.....	.....	.....	16500	6200●	7.50/20D	8.25/20	Wau BZ	6–4x4 1/4	320	5.9	235	105–3200	7–2 5/8x10 1/4		N	WG T97	4	Tim E100DPH	HF	H	•• –6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x 1/4	T
3	(c.o.e.)....250	.....	.....	.....	20000	6400●	8.25/20D	9.00/20	Wau BZ	6–4x4 1/4	320	5.9	235	105–3200	7–2 5/8x10 1/4		N	Fu 5A330	5	Tim H100DPH	HF	R	•• –6.80	Tim 32502H	L4IHV	344	584	a	TX	.....	10x3x 1/4	T
4	(c.o.e.)....400	.....	.....	.....	22000	6800●	9.00/20D	10.00/20	Wau BZ	6–4x4 1/4	320	5.9	235	105–3200	7–2 5/8x10 1/4		N	Fu 5A330	5	Tim L100DPH	HF	R	•• –6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x 1/4	T
5	(c.o.e.)....500	.....	.....	.....	23000	7500●	9.00/20D	10.00/20	Wau MZA	6–4 1/4x4 3/4	404	5.6	285	130–3000	7–2 5/8x12 1/2		Y	Fu 5F430	5	Tim L100DPH	HF	R	•• –6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x 1/4	T
6	(c.o.e.)....550	.....	.....	.....	28300	8100●	10.00/20D	11.00/20	Wau MZA	6–4 1/4x4 3/4	404	5.6	285	130–3000	7–2 5/8x12 1/2		Y	Fu 5F430	5	Tim Q100DPH	HF	R	•• –7.80	Tim 26452H	L4IHV	458	846	a	TX	.....	12x3x 1/4	T
7	(c.o.e.)..550 X	.....	.....	.....	32000	9600●	10.00/20D	11.00/24	Wau MZA	6–4 1/4x4 3/4	404	5.6	285	130–3000	7–2 5/8x12 1/2		Y	Fu 5F430	5	Tim S200DPH	2F	R	•• –7.84	Tim 26452H	L4IHV	576	1054	a	FD	.....	14x3x A	T
8	(c.o.e.)....600	.....	.....	.....	28000	10000●	10.00/20D	11.00/24	Wau 140 GK	6–4 1/4x5 1/2	525	6.4	425	172–2600	7–3 1/4x13 3/8		Y	Fu 5A650	5	Tim R100P	HF	R	•• –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x A	T
9	(c.o.e.)....601	.....	.....	.....	28000	10900●	10.00/20D	11.00/24	Wau 145 GK	6–5 1/4x6	779	6.2	595	240–2400	7–3 1/2x17 3/4		Y	Spi 7851	4	Tim R100P	HF	R	•• –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x A	T
10	(D) (c.o.e.)....602	.....	.....	.....	28000	11200●	10.00/20D	11.00/24	Cum HB600	6–4 7/8x6	672	17.	500	150–1800	7–4 1/2x16 1/2		Y	Spi 7851	4	Tim R100P	HF	R	•• –7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x A	T
11	Biederman...N8H	.....	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/4x10 11/16		N	Fu 5A330	5	Tim H700DPH	SF	H	•• –7.2	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x 1/4	C
12	.....N8D	.....	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/2x10 11/16		N	Fu 5A330	5	Tim H700DPH	2D	H	6.13–8.15	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x 1/4	C
13	.....N8R	.....	142	171	21000	7420	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/2x10 11/16		N	Spi 3541UP	5	Tim H110DPH	HFd	H	•• –6.4	Tim 35141PX	T4A	.....	.....	G	T	.....	9x3x 1/4	C
14	.....HL	.....	93	197	30000	12200	10.00/24D	12.00/24	Wau 140 GK	6–4 1/2x5 1/2	525	6.4	425	172–2600	7–3 1/4x13 3/8		Y	Spi 6252A	5	Tim R200	HFd	H	6.41–8.37	Tim 36000TW	T4A	.....	.....	G	T	81	10x3x A	T
15	Brown....R6572T	.....	144	166	33000	.....	11.00/22	12.00/24	Con R6572	6–4 3/4x5 5/8	572	5.9	440	172–2600	7–3 1/4x14 1/2		Y	Spi 6252B	5	Tim R100	Hy	H	•• –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
16	.....140GKT	.....	144	166	33000	.....	11.00/22	12.00/24	Wau 140GK	6–4 1/2x5 1/2	525	6.4	425	168–2400	7–2 3/4x13 3/8		Y	Spi 6252B	5	Tim R100	Hy	H	•• –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
17	(D)....HB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HB600	6–4 7/8x6	672	17	500	150–1800	7–4 1/2x16 1/2		Y	Fu 5A650	5	Tim R100	Hy	H	•• –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
18	(D)....HRB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HRB600	6–5 1/4x6	743	15.	530	165–1800	.....		Y	Fu 5A920	5	Tim R100	Hy	H	•• –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
19	(D)....NHB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum NHB600	6–5 1/4x6	743	15.	575	200–2100	.....		Y	Fu 5A920	5	Tim R200	2F	H	•• –6.42	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
20	(D)..HRBB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HRBB600	6–5 1/4x6	743	15.	500	175–2000	.....		Y	Fu 5A650	5	Tim R100	Hy	H	•• –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
21	(D)....6DA844T	.....	144	166	33000	.....	11.00/22	12.00/24	Bu 6DC844	6–5 1/4x6 1/2	844	..	640	210–2100	.....		Y	Spi 8045	4	Tim R300	....	H	.....	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/4x3 1/2x1 1/4	Tf
22	Chevrolet.....HP	895	116	....	4600	▼2570	6.00/16S	158	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	N	Own	§3	Own	Hy 1/2	T	•• –4.11	Own	O4IH	150	242	Co	2I	39	5 3/4x2 1/4x A	C
23	.....HR	990	125	....	5800	▼2880	158	7.50/17S	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	N	Own	§3	Own	HyF	H	†† –4.57	Own	O4IH	176	272	Co	2I	48 1/4	5 1/2x2 1/4x A	C
24	†Fwd. Control..HT	1005	125	....	7000	▼2675	158	7.50/17S	O-Load Mas.	6–3 A x3 11/16	235	6.7	182	92–3400	4– ♦ ♦		N	Own	§3	Own	HyF	H	•• –5.14	Own	O4IH	202	302	Co	2I	....	5 1/2x2 1/4x A	C
25	.....HS	1060	137	....	8800	▼3175	7.00/17S	7.00/18	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	•• –5.14	Own	O4IH	248	371	Co	2I	60	7x2 3/4x A	C
26	†Fwd. Control..HU	1095	137	••	10000	▼2915	7.00/17S	7.00/18	O-Load Mas.	6–3 A x3 11/16	235	6.7	182	92–3400	4– ♦ ♦		N	Own	4	Own	HyF	H	•• –5.14	Own	O4IH	248	371	Co	2I	....	7x2 3/4x A	C
27	.....TJ	1120	137	....	12500	▼3575	7.00/20S	7.50/20	O-Thrift Mas. ::	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I	60	7x2 3/4x A	C
28	.....TK	1155	161	....	12500	▼3685	7.00/20S	7.50/20	O-Thrift Mas. ::	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 7/8x1 1/4	C
29	(School bus)..TL	1300	161	....	12000	▼4115	6.50/20D	7.00/20	O-Thrift Mas. ::	6–3 1/2x3 3/4	216	6.	6	176	92–3400	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I††	....	8 1/4x2 7/8x1 1/4	C
30	.....TVS	1440	137	....	15000	▼4220	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	193	105–3600	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I	60	8 1/4x2 7/8x1 1/4	C
31	.....TWS	1475	161	....	15000	▼4295	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	193	105–3600	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 7/8x1 1/4	C
32	(c.o.e.)....TPS	●1795	110	....	15000	●▼4690	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60 1/8	8 1/4x2 7/8x1 1/4	C
33	(c.o.e.)....TRS	●1830	134	....	15000	●▼4780	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84 1/8	8 1/4x2 7/8x1 1/4	C
34	(c.o.e.)....TSS	●1865	158	....	15000	●▼4875	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	108 1/8	8 1/4x2 7/8x1 1/4	C
35	(c.o.e.)....TF	●1795	110	....	16000	●▼4690	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60 1/8	8 1/4x2 7/8x1 1/4	C
36	(c.o.e.)....TR	●1830	134	....	16000	●▼4780	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84 1/8	8 1/4x2 7/8x1 1/4	C
37	(c.o.e.)....TS	●1865	158	....	16000	●▼4875	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	190	100–3500	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	108 1/8	8 1/4x2 7/8x1 1/4	C
38	.....TV	1440	137	....	16000	▼4220	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	193	105–3600	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I	60	8 1/4x2 7/8x1 1/4	C
39	.....TW	1475	161	....	16000	▼4295	7.50/20D	9.00/20♠¶	O-Load Mas.	6–3 A x3 11/16	235	6.7	193	105–3600	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 7/8x1 1/4	C
40	(School bus)..TX	1520	199	....	15000	▼4650	7.50/20D	8.25/20	O-Load Mas.	6–3 A x3 11/16	235	6.7	193	105–3600	4– ♦ ♦		Y	Own	4	Own	HyF	H	▫ –6.17	Own	O4IH	330	478	Co	2I††	....	8 1/4x2 11/16x1 1/4	C
41	Corbitt....G101B■	.....	137	....	22000	.....	9.00/20	10.00/20	Con M6330	6–4x4 3/4	330	6.1	248	104–2800	7–2 5/8x12		Y	Cla 205V	5	Tim L100	HF	H	4.11–7.40	Tim 32502	LT4IHV	466	820	a	TX	61	8x3 1/4x1 1/4	T
42	.....G301B■	.....	145	....	26000	.....	10.00/22	11.00/22	Con B6371	6–4 1/2x4 5/8	371	6.0	280	100–2600	7–2 1/2x13 1/2		Y	Fu 5A43	5	Tim Q200	2F	H	7.77–8.53	Tim 35100	LT4IHV	730	1016	a	TX	71	8 1/4x3 1/4x A	T
43	.....G30 'B■	.....	145	....	28000	.....	10.00/22	11.00/22	Con B6427	6–4 A x4 7/8	427	5.9	325	127–2600	7–2 1/2x13 1/2		Y	Fu 5A43	5	Tim R300	2F	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	TX	61	8 1/4x3 1/4x A	T
44	.....G402B30	.....	155	....	30000	.....	10.00/22	11.00/24	Con T6427	6–4 1/2x4 7/8	427	6.	336	151–2600	7–2 1/2x13 1/2		Y	Fu 5A43	5	Tim S200	2F	H	5.91–9.76	Tim 35100	Ws4IA	672	1054	a	TX	61	10x3 1/4x1 1/4	T
45	.....G601B32	.....	155	....	32000	.....	10.00/20	11.00/24	Con R6513	6–4 1/2x5 5/8	513	5.9	400	170–2600	7–3 1/4x14 1/2		Y	Spi 6253	5	Tim S200	2F	H	5.91–9.76	Tim FE900	Ws4IA	672	1054	a	TD	72	10x3 1/4x1 1/4	TL
46	.....G603B34	.....	155	....	34000	.....	10.00/20	12.00/24	Con R6602	6–4 7/8x5 5/8	602	5.9	464	200–2600	7–3 1/4x14 1/2		Y	Fu 5A65	5	Tim U200	2F	H	5.91–9.76	Tim FE900	Ws4IA	672	1054	a	TD	72	10x3 1/4x1 1/4	TL
47	(T).....G101T20	.....	137	....	20000	.....	8.25/20	9.00/20	Con M6330	6–4x4 3/8	330	6.1	248	104–2800	7–2 5/8x12		Y	Cla 205V	5	Tim H100	HF	H	•• –5.29	Tim 32502	Ws4IA	418	642	a	TX	61	7 1/4x3 1/4x A	T
48	(T).....G302T22	.....	137	....	22000	.....	9.00/20	10.00/22	Con B6427	6–4 A x4 7/8	427	5.9	325	127–2600	7–2 1/2x13 1/2		Y	Fu 5A43	5	Tim L100	HF	H	•• –5.29	Tim 32502	Ws4IA	490	746	a	TX	61	7 1/4x3 1/4x A	T
49	(T).....G402T22	.....	145	....	25000	.....	10.00/20	10.00/22	Con T6427	6–4 A x4 7/8	427	6.	336	151–2600	7–2 1/2x13 1/2		Y	Fu 5A43	5	Tim Q100	HF	H	5.29–6.83	Tim 35000	Ws4IA	562	850	a	TX	61	8x3 1/4x1 1/4	T
50	(T).....G602T27	.....	147	....	28000	.....	10.00/22	11.00/24	Con R6572	6–4 3/4x5 5/8	572	5.9	440	189–2600	7–3 1/4x14 1/2		Y	Spi 6253	5	Tim R100	HF	H	6.17–7.40	Tim 35100	Ws4IA	598	950	a	2M	64	8 1/4x3 1/4x A	T
51	(T)(D) D20JT20	.....	137	....	20000	.....	8.25/20	9.00/20	Her DJXH	6–4 1/4x4 1/2	298	15.	233	99–2600	7–3x10 1/4		Y	Cla 205VO	5	Tim H300	2dF	H	6.13–8.15	Tim 32502	Ws4IA	418	642	a	TX	61	7 1/4x3 1/4x A	T
52	(T)(D) D401T23	.....	145	....	23000	.....	10.00/20	10.00/22	Her DWXD	6–4 1/4x4 1/2	404	15.	404	135–2600	7–3 1/2x11 5/8		Y	Fu 5A430	5	Tim L300	2dF	H	6.32–8.22	Tim 35000	Ws4IA	490	746	a	TX	61	8x3 1/4x1 1/4	T
53	(T)(D) D402T25	.....	145	....	25000	.....	10.00/20	10.00/22	Her DWXLD	6–4 1/4x5	426	15.	336	142–2600	7–3 1/2x11 5/8		Y	Fu 5A430	5	Tim Q300	2dF	H	6.53–8.53	Tim 35000	Ws4IA	562	850	a	TX	61	8x3 1/4x1 1/4	T
54	(T)(D) D601T27	.....	160	....	27000	.....	10.00/22	11.00/24	Her DRXC	6–4 5/8x5 1/4	529	15.	400	147–2200	7–3 1/2x13 3/4		Y	Spi 6253	5	Tim R300	2dF	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	2M	67	8 1/4x3 1/4x A	T
55	(T)(D) D800 Ser.‡‡	.....	160	....	30000	.....	10.00/22	11.00/24	Cum HB600	6–4 7/8x6	672	17.	500	150–1800	7–4 1/2x16 1/2		Y	Fu 5C720	5	Tim R100	HF	H	5.29–6.83	Tim FE900	Ws4IA	598	950	a	2M	66	8 1/4x3 1/4x A	T
56	(T)(D) D803T32	.....	160	....	32000	.....	10.00/22	11.00/24	Cum NHB600	6–5 1/4x6	743	17.	575	200–2100	7–4 1/2x16 1/2		Y	Fu 5C720	5	Tim R200	2F	H	5.91–7.21	Tim FE900	Ws4IA	672	1054	a	TD	66	8 1/4x3 1/4x A	T
57	Crosley.....B	.....	80	....	2130	1330°•	4.50/12	.....	Own	4–2 1/2x2 1/4	44	7.8	33	26–5400	5–‡		..	WG-ASI-T92	3	Spi	2F	..	•• –5.17	Own	G-H	♦♦♦	♦♦♦	C	2	.....	.....	C
58	Dodge.....B-2-B	.....	108	108	4850	.....	6.00/16S	6.50/16S	Own T-172	6–3 1/4x4 3/8	217	6.6	172	96–3600	4–2 1/2x4.8		N	NP-88840	3	Own T172	H 1/2	H	4.1 –4.78	Own T172	O4IH	175	264	cE	TX	40	A x2 1/8 x6 3/8	C
59	.....B-2-C	.....	116	116	5800	.....	7.00/15S	7.00/15S	Own T-174	6–3 1/4x4 3/8	217	6.6	172	96–3600	4–2 1/2x4.8		N	NP-88840	3	Own T174	H 1/2	H	4.1 –4.78	Own T174	O4IH	184	277	Co	TX	48	A x2 1/8 x6 1/8	C
60	.....B-2-D	.....	116	126	8000	.....	6.00/16S^	6.00/20	Own T-176	6–3 1/4x4 3/8	230	6.7	187	102–3600	4–2 1/2x4.8		N	NP-88770	3	Own T176	HyF	H	3.9 –4.89	Own T176	O4IH	209	316	Co	TX	48	A x2 1/8 x6 1/8	C
61	Rt. Van Sp. B1DU	.....	102	117	7900	.....	6.50/16S^	8.25/16S	Own T-164	6–3 1/4x4 3/8	230	6.6	186	94–3200	4–2 1/2x4.8		N	NP-88490	3	Own T164	HyF	H	3.9 –4.89	Own T164	O4IH	209	316	Co	TX	.....	A x2 1/8 x6 1/8	C
62	Rt. Van Sp. B1EU	.....	102	142	10100	.....	7.50/16S*	9.00/16S	Own T-165	6–3 1/4x4 3/8	230	6.6	186	94–3200	4–2 1/2x4.8		N	NP-88500	4	Own T165	HyF	H	4.89–5.8	Own T165	O4IH	234	355	Co	TX	.....	A x2 1/8 x6 3/8	C
63	.....B-2-FL	.....	128	152	9500	.....	6.00/20‡	6.50/20	Own T-178	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-39760	4	Own T178	HyF	H	5.6 –6.8	Own T178	O4IH	336	479	....	TX	60	.21x2 3/4x7	C
64	.....B-2-F	.....	128	170	13500	.....	6.00/20‡	8.25/20♦	Own T-178	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-39760	4	Own T178	HyF	H	5.6 –6.8	Own T178	O4IH	336	479	....	TX	60	.21x2 3/4x7	C
65	.....B-2-FA	.....	128	170	13500	.....	6.50/20	7.50/20♦	Own T-178	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-39760	4	Own T178	HyF	H	5.6 –6.8	Own T178	O4IH	336	479	....	TX	60	.21x3 3/4x7	C
66	.....B-2-G	.....	128	192	14500	.....	6.50/20¶	8.25/20	Own TX-178	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-88570	4	Own TX-178	HyF	H	5.6 –6.8	Own TX-178	O4IH	336	479	Co	TX	60	.21x2 7/8x8 3/8	C
67	.....B-2-GA	.....	128	192	14500	.....	6.50/20¶	8.25/20	Own TX-178	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-88570	4	Eat A5-1350	SFd	H	5.8 –8.8	Own TX-178	O4IH	336	479	Co	TX	60	.21x2 7/8x8 3/8	C
68	.....B-2-GM	.....	107	161	14750	.....	6.50/20	8.25/20	Own TX-182	6–3 1/4x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04		N	NP-88850	4	Own TX-182	HyF	H	5.6 –6.8	Own TX-182	O4IH	336	479	Co	TX	60	.21x2 7/8x8 3/8	C

¶—8.25/20 front tires are required when 9.00/20 dual rears are used.

••—Pick-up truck; panel delivery 1360.

●—Includes cab.

¶—Front only: Rear 7.50/20

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::—Own Loadmaster engine available on models TJ-TK-TL at extra cost.

▫—5.43 axle available on Models TJ-TK-TL and 2-speed axle available on TVS-TWS-TP-TPS-TR-TRS-TS-TSS-TV-TW-TX.

•—Front only, rear 8.25/16.

‡—Front only: Rear 6.50/20S.

♦♦♦—Two moulded buttons per wheel—1 1/4" diameter, 3/8" thick.

■—Available with optional tires and axles for less G.V.W. rating.

‡‡—Also available with Cummins HRB600, HRBB600, and NHB600.

†—Forward control Chassis for Door-to-Door delivery bodies. These chassis do not have cowl.

††—Also available in 5.14 ratio.

▲—Front only; Rear 7.00/16S.

‡—1 Front 1.375x1.312; 3 Center 1.375x.870; 1 Rear 1.500x1.499.

§—4-speed transmission available.

♦♦—Diameter; (Average) Front, 2.6858; Front Center, 2.7168; Rear Center, 2.7478; Rear, 2.7788; Total length, 5 3/8.

▼—Includes spare tire, full fuel tank and cooling system.

♦—For only single rear; Dual rear are 7.50/20.

††—Propeller shaft type available at extra cost.

The ad that failed

SPECIAL trade-in offer
to owners of 15* year and older Mack trucks
Why It Will Pay You to Modernize NOW With Mack
Modernize with
Mack
"Built like a Mack —the outlast them all!"

...and why!

Proving that Mack trucks outlast them all!

Mack

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

8345

Thanks — but no! "Our fleet comprises 235 motor vehicles and includes 136 Macks, several of which have passed the fifteen-year mark . . . one is in its twenty-fifth year. All are registered and operating profitably. We can see no reason to retire such trucks at this time." C. W. HALL, PRESIDENT, C. E. HALL & SONS, SOMERVILLE, MASS.

Not trading! "My 1923 Mack still does its share to gross me $3,000 per year in the moving business—and I have spent less than $100 in repairs on this truck in the last 20 years. Obviously, I am not interested in trading." I. V. ASHBY, ASHBY HOUSE MOVING CO., OKLAHOMA CITY.

Will keep! "Our 1934 Mack is still giving good service—it is the oldest of our 30 Macks but still good enough to keep." CLARENCE J. SMITH, SMITH BROS. TRUCK CO., LOS ANGELES, CALIFORNIA.

Still too good! "With reference to your proposal to give us an extra allowance on our Bulldog Mack purchased in 1922—please be advised that this truck is too good to trade in." J. KOLKO, SPEEDWAY WRECKING CO., CHICAGO, ILL.

Trade? not yet! "Forty-two of our trucks are Macks—some of them 27 years old. They outlast any other make and have proved very economical to operate. Not trading yet." JOSEPH CAPECCI, PHILADELPHIA, PENNA.

(Continued from Page 86)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Dodge—Cont'd.																														
1	B-2-GMA		107	161	14750		6.50/20	8.25/20	Own TX-182	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 -8.8	Own TX-182	O4IH	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
2	B-2-H		128	192	16000		7.50/20	8.25/20	Own T-192	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88570	4	Own T-192	HyF	H	6.2 -6.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
3	B-2-HA		128	192	16000		7.50/20	8.25/20	Own T-192	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88570	4	Eat A5-1350	SFd	H	5.8 -8.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
4	B-2-HM		107	161	16250		7.50/20	8.25/20	Own T-194	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88850	4	Own T-194	HyF	H	6.2 -6.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
5	B-2-HMA		107	161	16250		7.50/20	8.25/20	Own T-194	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 -8.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
6	B-2-HH		128	192	16000		7.50/20	8.25/20	Own T-192	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88570	4	Own T-192	HyF	H	6.2 -6.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
7	B-2-HHA		128	192	16000		7.50/20	8.25/20	Own T-192	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88570	4	Eat A5-1350	SFd	H	5.8 -8.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
8	B-2-HHM		107	161	16250		7.50/20	8.25/20	Own T-194	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88850	4	Own T-194	HyF	H	6.2 -6.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
9	B-2-HHMA		107	161	16250		7.50/20	8.25/20	Own T-194	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 -8.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8 1/2	C
10	B-2-JL		128	212	17000		6.00/20	8.25/20	Own T-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Own T-180	HyF	H	6.2- 7.16	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
11	B-2-JAL		128	212	17000		6.00/20	8.25/20	Own T-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Eat A5-1350	SFd	H	5.8 -8.8	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
12	B-2-J		128	212	17000		6.50/20	8.25/20	Own T-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Own T-180	HyF	H	6.2- 7.16	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
13	B-2-JA		128	212	17000		6.50/20	8.25/20	Own T-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Eat A5-1350	SFd	H	5.8 -8.8	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
14	B-2-JML		107	161	17250		6.00/20	8.25/20	Own T-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Own T-184	HyF	H	6.2 -7.16	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
15	B-2-JMAL		107	161	17250		6.00/20	8.25/20	Own T-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Eat A5-1350	SFd	H	5.8 -8.8	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
16	B-2-JM		107	161	17250		6.50/20	8.25/20	Own T-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Own T-184	HyF	H	6.2 -7.16	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
17	B-2-JMA		107	161	17250		6.50/20	8.25/20	Own T-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Eat A5-1350	SFd	H	5.8 -8.8	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
18	B-2-KJ		128	212	17500		8.25/20▲	9.00/20	Own TX-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Eat 16500	SFd	H	6.14-9.04	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
19	B-2-KAL		128	212	17500		8.25/20▲	9.00/20	Own TX-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Tim H-101	HyF	H	6.8 -7.2	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
20	B-2-K		128	212	17500		8.25/20▲	9.00/20	Own TX-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Tim H-101	HyF	H	6.8 -7.2	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
21	B-2-KA		128	212	17500		8.25/20▲	9.00/20	Own TX-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Eat 16500	SFd	H	6.14-9.04	Own T-180	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
22	B-2-KML		107	161	17750		8.25/20▲	9.00/20	Own TX-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Own T-184	HyF	H	6.2 -7.16	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
23	B-2-KMAL		107	161	17750		8.25/20▲	9.00/20	Own TX-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Tim H-101	HyF	H	6.8 -7.2	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
24	B-2-KM		107	161	17750		8.25/20▲	9.00/20	Own TX-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Eat 16500	SFd	H	6.14-9.04	Own T-184	O4IHV	396	553	c	TX	60	1/2 x2 3/4 x8 1/2	P
25	B-2-KMA		107	161	17750		8.25/20▲	9.00/20	Own TX-184	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88920	5	Tim H-100	HyF	H	** -6.8	Own T-186	O4IHV	397	609	c	TX	60	1/2 x2 3/4 x9	P
26	B-2-R		130	229	19000		7.50/20	9.00/20	Own T-186	6-3 3/4 x4 5/8	306	6.4	245	122-3200	7-3x11.23	Y	NP-88220	5	Tim H-300	HFd	H	6.14-8.15	Own T-186	O4IHV	397	609	c	TX	60	1/2 x2 3/4 x9	P
27	B-2-RA		130	229	19000		7.50/20	9.00/20	Own T-186	6-3 3/4 x4 5/8	306	6.4	245	122-3200	7-3x11.23	Y	NP-88450	5	Tim L-100	HyF	H	6.8 -8.2	Tim 32500	O4IHV	425	666	c	TX	60	1/4 x3x10	P
28	B-2-T		130	190	21000		7.50/20△	10.00/20	Own TX-188	6-3 3/4 x5	331	6.4	270	128-3000	7-3x11.23	Y	NP-88450	5	Tim L-300	HFd	H	6.3 -9.18	Tim 32500	O4IHV	425	666	c	TX	60	1/4 x3x10	P
29	B-2-TA		130	190	21000		7.50/20△	10.00/20	Own TX-188	6-3 3/4 x5	331	6.4	270	128-3000	7-3x11.23	Y	NP-88450	5	Tim Q-100	HyF	H	6.8 -7.8	Tim 32500	O4IHV	486	770	c	TX	60	1/4 x3x10	P
30	B-2-V		130	190	23000		9.00/20†	11.00/20	Own TX-188	6-3 3/4 x5	331	6.4	270	128-3000	7-3x11.23	Y	NP-88450	5	Tim Q-300	HFd	H	6.5 -9.5	Tim 32500	O4IHV	486	770	c	TX	60	1/4 x3x10	P
31	B-2-VA		130	190	23000		9.00/20†	11.00/20	Own TX-188	6-3 3/4 x5	331	6.4	270	128-3000	7-3x11.23	Y	NP-88450	5	Tim Q-100	HyF	H	††	Tim 32500	O4IHV	486	770	c	TX	60	1/4 x3 1/8 x10 1/2	P
32	YL-YAL-Y-YA School Buses		130	190	28000		9.00/20†	11.00/20	Own T-190	6-4x5	377	6.5	330	154-3000	7-3x11.23	Y	Cla-290-V2	5	Tim Q-100	HyF	H	††	Tim 32500	O4IHV	486	770	c	TX	60	1/4 x2 3/4 x7 1/2	P
33	B-2-FS		152	170	13500		6.50/20	7.50/20	Own TS-178	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	N	NP-39760	4	Own TS-178	HyF	H	5.6 -6.8	Own TX-178	O4IHV	336	479	Co	TX	.....	1/4 x2 1/2 x8 1/2	C
34	B2-GS		192	192	15000		7.50/20	7.50/20-10	Own TX8-178	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	N	NP-88570	4	Own TX-178	HyF	H	5.6 -6.8	Own TX-178	O4IHV	336	479	Co	TX	.....	1/4 x2 1/2 x8 1/2	C
35	B2-HHS		192	192	15500		7.50/20	8.25/20	Own TS-192	6-3 1/8 x4 1/4	236	6.6	192	109-3600	4-2 1/2 x5.04	N	NP-88570	4	Own TS-192	HyF	H	6.2 -6.8	Own T-192	O4IHV	336	479	Co	TX	.....	1/4 x2 1/2 x8 1/2	C
36	B-2-JS		212	212	17000		7.50/20	8.25/20	Own TS-180	6-3 1/8 x4 1/2	250	6.6	204	114-3600	4-2 1/2 x5.04	Y	NP-88700	5	Tim H-101	HyF	H	6.8 -7.2	Own T-180	O4IHV	396	553	c	TX	.....	1/4 x2 3/4 x8 1/2	P
37	B-2-RS		229	229	19000		8.25/20	9.00/20	Own TS-186	6-3 3/4 x4 5/8	306	6.4	245	122-3200	7-3x11.23	Y	NP-88220	5	Tim H100	HyF	H	6.8	Own T-186	O4IHV	397	609	c	TX	.....	1/4 x2 3/4 x9 1/2	P
38	Duplex.....T		136	220	18000	6600	8.25/20D	9.00/20	Her JXD	6-4x4 1/4	320	6.2	240	113-3000	7-2 1/2 x10 1/2	Y	Fu 5B330	5	Tim H100	B	H	** -7.20	Tim 32502	L4IHV	420	654	A	TX	57 3/4	9 1/4 x3 1/2 x 1/4	C
39	TH-404		136	220	18000	6900	8.25/20D	9.00/20	Her WXLC3	6-4 1/4 x4 1/4	404	5.8	312	139-2600	7-2 5/8 x13 3/4	Y	Fu-5A430	5	Tim H-300	DF	H	6.13-8.15	Tim 32502	L4IHV	420	654	A	TX	49 1/4	9 1/4 x3 1/2 x 1/4	C
40	R		136	220	25000	8820	9.00/20D	10.00/20	Her WXLC-3	6-4 1/4 x4 1/4	404	5.8	312	139-2600	7-2 5/8 x13 3/4	Y	Fu 5A43	5	Tim Q300	DF	R	6.53-8.53	Tim 35100	L4IHV	730	1016	A	TX	49 1/4	9 1/4 x3 1/2 x 1/4	C
41	SH-501		172	208	27000	9500	10.00/20	11.00/20	Her RXB	6-4 1/2 x5 1/4	501	5.4	360	137-2400	7-3x13 3/4	Y	Fu 5A620	5	Tim Q200	2F	R	** -7.77	Tim 35100	BW4IA	730	1016	A	TX	61 1/4	9 1/4 x3 1/2 x 1/4	C
42	JHA		148	220	28000	9800	10.00/20D	11.00/20	Her RXB	6-4 1/2 x5 1/4	501	5.4	360	137-2400	7-3x13 3/4	Y	Fu-5C650	5	Tim 8200	2F	R	** -9.83	Tim 26450	BW4IA	912	1311	A	TX	61 1/4	10 1/4 x3 1/4 x 1/4	C
43	JH-558		148	220	28000	9800	10.00/20D	11.00/20	Her RXLD	6-4 3/4 x5 1/4	558	6.3	430	154-2400	7-3 1/2 x13 1/4	Y	Fu 5A620	5	Tim S-300	DF	R	6.41-8.37	Tim 26450	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/4 x 1/4	C
44	KHA		148	220	32000	10500	11.00/20D	11.00/20	Her RXC	6-4 1/2 x5 1/4	529	5.4	395	132-2300	7-3x13 3/4	Y	Fu 5A620	5	Tim U-200	2F	R	** -9.83	Tim 26450	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/4 x 1/4	C
45	L		148	220	37000	11300	11.00/20D	11.00/20	Her RXLD	6-4 3/4 x5 1/4	558	5.4	430	154-2400	7-3 1/2 x13 1/4	Y	Fu 5C650	5	Tim U-200	2F	R	** -9.83	Tim 26450	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/4 x 1/4	C
46	Federal.....15M		135	194	14500	4080	6.50/20D	7.50/20	Herc JXEF	6-3 1/2 x4 1/4	245	...	184	93-3400	7-2 1/2 x10 1/2	N	WGT9A	4	T53547DPH	BF	H	5.66	Tim 30000H X	L4IHV	310	482	a	TX	56	8 1/4 x2 7/8 x 1/4	T
47	16M		139	250	15500	4460	7.50/20D	7.50/20	Her JXEF	6-3 1/2 x4 1/4	245	...	184	93-3400	7-2 1/2 x10 1/2	N	WG T9A	4	T 53547DPH	BF	H	** -5.66	Tim 30000H X	L4IHV	310	482	a	TX	60	8 1/4 x2 7/8 x 1/4	T
48	16M2		139	250	15500	4590	7.50/20D	8.25/20D	Her JXEF	6-3 1/2 x4 1/4	245	...	184	93-3400	7-2 1/2 x10 1/2	N	WG T9A	4	Tim E300DPH	dF	H	6.13-8.10	Tim 30000H X	L4IHV	310	482	a	TX	60	8 1/4 x2 7/8 x 1/4	T
49	180IT		136	250	17000	5760	8.25/20D	8.25/20	Her JXBF	6-3 5/8 x4 1/4	263	...	192	98-3200	7-2 1/2 x10 1/2	N	WG T9A●	4	Tim E100DPH	SF	H	** -6.20	Tim 30003H	LT4IHV	314	532	a	TX	60	9 1/4 x3x 1/4	T
50	180ZT		136	250	17000	5890	8.25/20D	8.25/20	Her JXBF	6-3 5/8 x4 1/4	263	...	192	98-3200	7-2 1/2 x10 1/2	N	WG T9A●	4	Tim E300DPH	dF	H	6.13-8.10	Tim 300[illegible]	LT4IHV	314	532	a	TX	60	9 1/4 x3x 1/4	T
51	250IT		136	250	19000	6025	8.25/20D	9.00/20	Her JXCF	6-3 3/4 x4 1/4	282	...	212	103-3200	7-2 1/2 x10 1/2	N	WG T97●	4	Tim H100DPH	SF	H	** -6.80	Tim 3100H	LT4IHV	346	583	a	TX	60	9 1/4 x3x 1/4	T
52	250ZT		136	250	19000	6105	8.25/20D	9.00/20	Her JXCF	6-3 3/4 x4 1/4	282	...	212	103-3200	7-2 1/2 x10 1/2	N	WG T97●	4	Tim H300DPH	dF	H	6.13-8.15	Tim 3100H	LT4IHV	346	583	a	TX	60	9 1/4 x3x 1/4	T
53	290IT		136	250	21500	6535	9.00/20D	10.00/20	Her JXDF	6-4 1/4 x4 1/4	320	...	250	115-3100	7-2 1/2 x10 1/2	Y	Cla 205V▼	5	Tim L100DPH	SF	H	** -6.83	Tim 32514H	LT4IHV	466	820	a	TX	60	9 1/4 x3x 1/4	T
54	290ZT		136	250	21500	6695	9.00/20D	10.00/20	Her JXDF	6-4 1/4 x4 1/4	320	...	250	115-3100	7-2 1/2 x10 1/2	Y	Cla 205V▼	10	Tim L300DPH	dF	H	6.32-8.22	Tim 32514H	LT4IHV	466	820	a	TD	76	9 1/4 x3x 1/4	T
55	290ZT		136	250	21500	7260	9.00/20D	10.00/20	Her JXDF	6-4 1/4 x4 1/4	320	...	250	115-3100	7-2 1/2 x10 1/2	Y	Cla 205V◆	15	Tim L100DPH	SF	H	** -6.83	Tim 32514H	LT4IHV	466	820	a	TX	60	9 1/4 x3x 1/4	T
56	300IT		136	250	21500	6575	9.00/20D	10.00/20	Herc JXLDF	6-4 1/4 x5 1/2	339	...	272	131-3200	7-2 1/2 x10 1/2	Y	Cla 205V▼	5	Tim L100DPH	SF	H	** -6.83	Tim 32514H	LT4IHV	466	820	a	TX	60	9 1/4 x3x 1/4	T
57	300ZT		136	250	21500	6735	9.00/20D	10.00/20	Herc JXLDF	6-4 1/4 x5 1/2	339	...	272	131-3200	7-2 1/2 x10 1/2	Y	Cla 205V▼	10	Tim L300DPH	dF	H	6.32-8.22	Tim 32514H	LT4IHV	466	820	a	TD	76	9 1/4 x3x 1/4	T
58	300ZT		136	250	21500	7300	9.00/20D	10.00/20	Herc JXLDF	6-4 1/4 x5 1/2	339	...	272	131-3200	7-2 1/2 x10 1/2	Y	Cla 205V▼	15	Tim L100DPH	SF	H	** -6.83	Tim 32514H	LT4IHV	466	820	a	TX	60	9 1/4 x3x 1/4	T
59	35M		143	203	22500	6925	9.00/20D	10.00/20	Con T6371F	6-4 1/2 x4 5/8	371	...	290	140-3000	7-2 1/2 x13 1/2	Y	Cla 290VO	5	Tim Q100P	SF	R	** -6.83	Tim FD-900	TW4IA	606	933	a	TD	60 1/2	10 1/4 x3 1/4 x 1/4	T
60	35M2		143	203	22500	7115	9.00/20D	10.00/20	Con T6371F	6-4 1/2 x4 5/8	371	...	290	140-3000	7-2 1/2 x13 1/2	Y	Cla 290VO	10	Tim Q300P	dF	R	6.53-8.53	Tim FD-900	TW4IA	606	933	a	TD	60 1/2	10 1/4 x3 1/4 x 1/4	T
61	45M		143	203	26000	8005	10.00/20D	10.0/24	Con T6427F	6-4 1/4 x4 1/4	427	...	347	158-2800	7-2 1/2 x13 1/2	Y	Cla 290VO	10	Tim S300P	HyF	R	6.53-8.53	Tim FD-900	Tw4IA	722	1051	a	TD	60 1/2	10 1/2 x3 1/4 x 1/4	T
62	45M2		143	203	26000	8380	10.00/20D	10.00/24	Con T6427F	6-4 1/4 x4 1/4	427	...	347	158-2800	7-2 1/2 x13 1/2	Y	Cla 290VO	10	Tim S300P	HyF	R	6.53-8.53	Tim FD-900	Tw4IA	722	1051	a	TD	60 1/2	10 1/2 x3 1/4 x 1/4	T
63	55M2		143	203	30000	8635	11.00/22D	11.00/24	Con T6427F	6-4 1/4 x4 1/4	427	...	347	158-2800	7-2 1/2 x13 1/2	Y	Cla 290V◆	15	Tim S-200P	2F	R	** -7.08	Tim FD-900	TW4IA	722	1051	a	TD	72 1/2	10 1/2 x3 1/4 x 1/4	T
64	55MA		155	203	30000	8765	11.00/22D	11.00/24	Con T6427F	6-4 1/4 x4 1/4	427	...	347	158-2800	7-2 1/2 x13 1/2	Y	Fu 5A65§	15	Tim 8200P	2F	R	** -7.08	Tim FD-900	Tw4IA	722	1051	a	FX	72 1/2	10 1/2 x3 1/4 x 1/4	T
65	60MA		155	203	32000	9600	11.00/22D	11.00/24	Con 22RF	6-4 1/2 x5 1/4	501	...	385	148-2400	7-2 3/4 x14 1/2	Y	Fu 5A65§	10	Tim S300P	HyF	R	6.53-8.53	Tim FD-900	Tw4IA	722	1051	a	TX	60 1/2	10 1/4 x3 1/4 x 1/4	T
66	60M2		143	203	32000	9370	11.00/22D	11.00/24	Con 22RF	6-4 1/2 x5 1/4	501	...	385	148-2400	7-2 3/4 x14 1/2	Y	Fu 5A650	10	Tim S300P	HyF	R	6.53-8.53	Tim FE-900	Ws4IA	722	1051	a	TX	60 1/2	10 1/4 x3 1/4 x 1/4	T
67	65M2		141	201	33000	9995	11.00/22D	11.00/24	Con R6602F	6-4 7/8 x5 3/4	602	...	466	200-2600	7-3 1/4 x14 1/2	Y	Fu 5A650	10	Tim S300P	HyF	R	6.53-8.53	Tim FE-900	Ws4IA	722	1051	a	TX	72 1/2	10 1/2 x3 1/4 x 1/4	T
68	65MA		153	201	33000	10225	11.00/22D	11.00/24	Con R6602F	6-4 7/8 x5 3/4	602	...	466	205-3000	7-3 1/4 x14 1/2	Y	Fu 5A65§	15	Tim 8200P	HyF	R	** -7.08	Tim FE-900	Ws4IA	722	1051	a	TX	72 1/2	10 1/2 x3 1/4 x 1/4	T
	Ford F-1																														
69	Cowl....9HC-84	930	114	114	4700	2226	6.00/16-4	6.50/16-6S	Own 7HC	6-3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 21C	3	Own 8C	H 1/2	H	3.73-4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2 1/2 x15	T
70	Cowl....9RC-84	960	114	114	4700	2266	6.00/16-4	6.50/16-6S	Own 8RC	8-3 1/8 x3 1/4	239	6.8	180	100-3800	3-2.49x5.2	N	Own 21C	3	Own 8C	H 1/2	H	3.73-4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2 1/2 x15	T
	F-2																														
71	Cowl...9HD-84	1045	122	122	5700	2616	6.50/16-6	7.50/16-6S	Own 7HD	6-3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 51Y	4	Own 8D	SF	H	** -4.86	Own 8D	O4IH	167	264	Co	M2	48.06	6x2 1/4 x.19	T
72	Cowl....9RD-84	1075	122	122	5700	2656	6.50/16-6	7.50/16-6S	Own 8RD	8-3 1/8 x3 3/4	239	6.8	180	100-3800	3-2.49x5.2	N	Own 51Y	4	Own 8D	SF	H	** -4.86	Own 8D	O4IH	167	264	Co	M2	48.06	6x2 1/4 x.19	T

†—Front only; Rear 10.00/20.
△—Front only; Rear 8.25/20.
▲—Front only; Rear 9.00/20-10.

‡—For wheelbases below 196"—9x3x1/4.
●—Five speed transmission optional.
▼—Overdrive optional.

††—6.8-9.23 for Models YL and Y. 6.53-8.53 standard on YAL and YA, but 7.27/9.49 ratios are also available on these two models.

●—For shorter wheelbases—10x3 1/2 x1/4.
◆—Auxiliary trans. Spicer 6231B, three forward speeds.

§—Auxiliary trans. Spicer 703F, three forward speeds.

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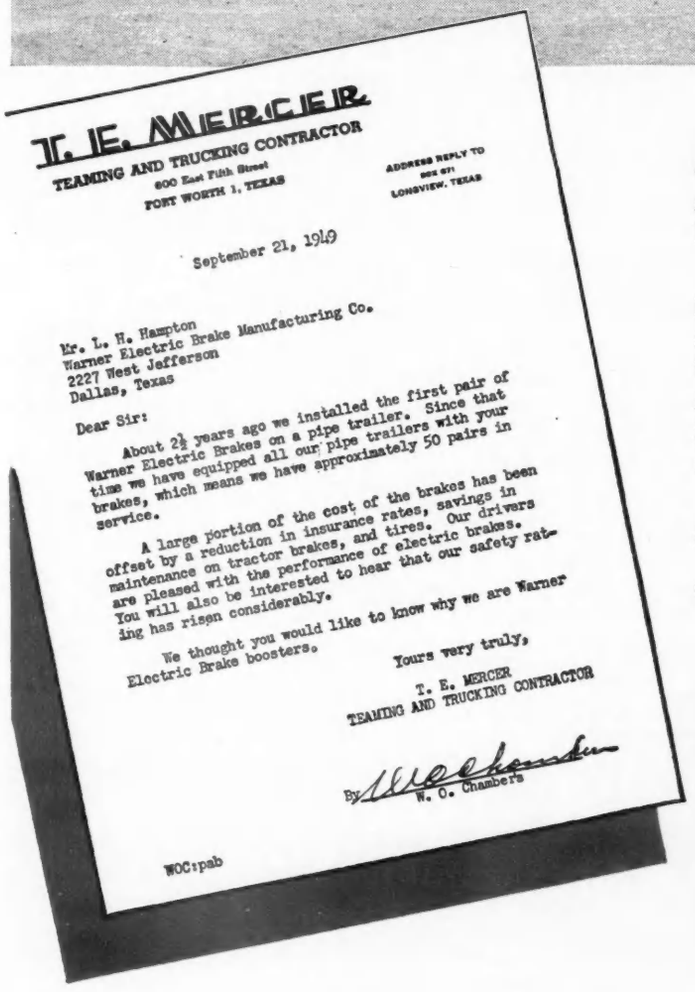
USER REPORT:

T. E. Mercer Equips Fleet with Warner Electric Brakes. Reports Savings in Maintenance on Brakes and Tires . . . reduced Insurance Rates . . . Improvement in Safety Rating



T. E. MERCER
TEAMING AND TRUCKING CONTRACTOR
600 East Fifth Street
FORT WORTH 1, TEXAS

ADDRESS REPLY TO
BOX 671
LONGVIEW, TEXAS

September 21, 1949

Mr. L. H. Hampton
Warner Electric Brake Manufacturing Co.
2227 West Jefferson
Dallas, Texas

Dear Sir:

About 2½ years ago we installed the first pair of Warner Electric Brakes on a pipe trailer. Since that time we have equipped all our pipe trailers with your brakes, which means we have approximately 50 pairs in service.

A large portion of the cost of the brakes has been offset by a reduction in insurance rates, savings in maintenance on tractor brakes, and tires. Our drivers are pleased with the performance of electric brakes. You will also be interested to hear that our safety rating has risen considerably.

We thought you would like to know why we are Warner Electric Brake boosters.

Yours very truly,

T. E. MERCER
TEAMING AND TRUCKING CONTRACTOR

By W. O. Chambers

WOC:pab

A NEW user — or an old customer — their opinions about Warner Electric Brake performance, safety, maintenance are always the same. The experience of Mr. Chambers of the T. E. Mercer Company is typical.

Warner Electric Brakes are fast and positive acting. Because they operate *electrically,* they give faster action and braking control not possible with any other kind of brakes. What's more, their mechanical simplicity and rugged construction make them extremely economical to maintain. Many users are still operating Warner Electric Brakes originally purchased 10, 15 and 20 years ago!

Write for illustrated literature explaining their many advantages.

WARNER ELECTRIC BRAKE MFG. CO.
BELOIT, WISCONSIN

WARNER
ELECTRIC BRAKES

SINCE 1927

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(Continued from Page 88)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Dual unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Ford, Continued																														
	F-3																														
1	Cowl....9HY-84	1120	122	122	6800	2849	7.00/17-6S	7.50/17-8S	Own 7HY	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 51Y	4	Own 8Y	SF	H	** –4.86	Own 8D	O4IH	188	308	Co	M2	48.06	6x2¼x.19	T
2	Cowl....9RY-84	1150	122	122	6800	2889	7.00/17-6S	7.50/17-8S	Own 8RY	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 51Y	4	Own 8Y	SF	H	** –4.86	Own 8D	O4IH	188	308	Co	M2	48.06	6x2¼x.19	T
	F-3 Parcel Divy.																														
3	w/s.....9HJ	1375	104	104	7800	3030	7.00/16-6	7.50/17-8S	Own 8HJ	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	215	330	C	TX	82●	6x2¼x.19	T
4	w/s.....9H2J	1390	122	122	7800	3100	7.00/16-6	7.50/17-8S	Own 8HJ	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.2	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	215	330	C	TX	100●	6x2¼x.19	T
	F-4																														
5	Cowl...9HTL-84	1175	134	134	10000	3457	7.00/20-8S	7.00/18-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RTL	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
6	Cowl...9RTL-84	1205	134	134	10000	3497	7.00/20-8S	7.00/18-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RTL	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
	F-5																														
7	Cowl....9HT-84	1220	134	134	14000	3646	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
8	Cowl....9RT-84	1250	134	134	14000	3686	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
9	Cowl...9HST-84	1250	158	158	14000	3796	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7x2¾x.21	●TL
10	Cowl...9RST-84	1280	158	158	14000	3836	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7–2¾x.21	●TL
11	Cowl...9H6T-84	1370	176	176	14000	3926	6.50/20-6	7.50/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.2	7.08x2.79x¼	●TL
12	Cowl...9R6T-84	1401	176	176	14000	3966	6.50/20-6	7.50/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.2	7.08x2.79x¼	TL●
	F-5 C.O.E.																														
13	Cab...9HOW-81	1605	110	110	14000	4346	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	**7x2¼x.21**●	●TL
14	Cab...9ROW-81	1635	110	110	14000	4386	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	**7x2¼x.21**●	●TL
15	Cab....9HW-81	1635	134	134	14000	4476	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	**7.08x2.8x¼**●	●TL
16	Cab....9RW-81	1665	134	134	14000	4516	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	**7.08x2.8x¼**●	●TL
17	Cab...9H8W-81	1665	158	158	14000	4546	6.50/20-6	7.50/20-8	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	108.1	7.08x2.8x¼	●TL
18	Cab...9R8W-81	1695	158	158	14000	4586	6.50/20-6	7.50/20-8	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	108.1	7.08x2.8x¼	●TL
	F-5 School Bus																														
19	Bus Cl..9H8T-84	1315	158	158	12000	3755	6.50/20-6	7.00/20-8	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128●	7x2¾x.21●	●TL
20	Bus Cl..9R8T-84	1345	158	158	12000	3795	6.50/20-6	7.00/20-8	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128●	7x2¾x.21●	●TL
21	Bus Cl..9H4T-84	1530	194	194	15000	4260	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IHV	302	506	Co	TX	164●	7.08x2.8x¼	●TL
22	Bus Cl..9R4T-84	1560	194	194	15000	4300	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–5.67	Own 7RTH	O4IHV	302	506	Co	TX	164●	7.08x2.8x¼	●TL
	F-6																														
23	Cowl...9HTH-84	1610	134	134	16000	3976	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼	●TL
24	Cowl...9RTH-84	1640	134	134	16000	4019	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼	●TL
25	Cowl..9MTH-84	1665	134	134	16000	4024	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¼	●TL
26	Cowl.9H8TH-84	1640	158	158	16000	4049	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
27	Cowl.9M8TH-84	1707	158	158	16000	4074	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
28	Cowl..9R8TH-84	1670	158	158	16000	4089	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
29	Cowl.9M6TH-84	1748	176	176	16000	4154	7.50/20-8	8.25/20-10	Own 8MTH	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼	●TL
30	Cowl.9H6TH-84	1623	176	176	16000	4129	7.50/20-8	8.25/20-10	Own 7HT	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼	●TL
31	Cowl.9R6TH-84	1655	176	176	16000	4169	7.50/20-8	8.25/20-10	Own 8RT	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¼	●TL
	F-6 C.O.E.																														
32	Cab.9HOWH-81	1990	110	110	16000	4549	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¼x.21●	●TL
33	Cab.9ROWH-81	2020	110	110	16000	4589	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¼x.21●	●TL
34	Cab.9MOWH-81	2059	110	110	16000	4574	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¼x.21●	●TL
35	Cab...9HWH-81	2020	134	134	16000	4679	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
36	Cab...9RWH-81	2050	134	134	16000	4779	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
37	Cab..9MWH-81	2091	134	134	16000	4704	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¼	●TL
38	Cab..9H8WH-81	2050	158	158	16000	4749	7.50/20-8	8.25/20-10	Own 8HW	6–3.3x4.4	226	6.8	180	95–3300	4–2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼	●TL
39	Cab..9R8WH-81	2080	158	158	16000	4789	7.50/20-8	8.25/20-10	Own 8RW	8–3⅛x3¾	239	6.8	180	100–3800	3–2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼	●TL
40	Cab.9M8WH-81	2122	158	158	16000	4774	7.50/20-8	8.25/20-10	Own 8MWH	6–3.5x4.4	254	6.8	210	106–3400	4–2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¼	●TL
	F-7																														
41	Cowl....9EQ-84	2685	135	135	19000	5478	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	61.06	9x3x.25†	T
42	Cowl...9E7Q-84	2861	147	147	19000	5528	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	73.06	9x3x.25†	T
43	Cowl...9E9Q-84	2735	159	159	19000	5648	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	85.06	9x3x.25†	T
44	Cowl...9E8Q-84	2913	178	178	19000	5748	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	104.1	9x3x.25†	T
45	Cowl...9E5Q-84	2785	195	195	19000	5808	8.25/20-10	9.00/20-10	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	121.1	9x3x.25†	T
	F-8																														
46	Cowl...9EQH-84	3155	135	135	22000	5934	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV	471	729	C	TX	61.06	9x3x.25†	T
47	Cowl..9E7QH-84	3352	147	147	22000	5984	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	471	729	C	TX	73.06	9x3x.25†	T
48	Cowl..9E9QH-84	3205	159	159	22000	6224	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	471	729	C	TX	85.06	9x3x.25†	T
49	Cowl..9E8QH-84	3404	178	178	22000	6124	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4½	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	471	729	C	TX	104.1	9x3x.25†	T
50	Cowl..9E5QH-84	3255	195	195	22000	6284	9.00/20-10	10.0/20-12	Own 8EQ	8–3½x4⅓	337	6.4	255	145–3600	3–2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	471	729	C	TX	121.1	9x3x.25†	T
	Freightliner																														
51	(c.o.e.).....B-42	.....	112	120	34000	▲11200	10.00/22	.....	Cum HRB	6–5½x6	743	13½	540	165–1800	7–4½x16½	Y	Fu 4A86	8	Eat 22501	SFd	H	4.33–6.67	Tim 27061	O4IA	645	1050	a	TD	72	10⅜x3½x¼	DL
52	Kenworth(D)..521	.....	165	255	28000	12000	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17	500	150–1800	7–4½x16	Y	BL 8241	4	Tim U200P	H2F	H	5.91–9.76	TimFe900DPA	Ws4IA	722	1174	a	TD	74	9½x3¼x	C
53	585	.....	165	255	28000	9600	10.00/20	11.00/22	Wau 140GZ	6–4⅝x5½	554	6.4	450	188–2600	7–3x13	Y	Fu 5C650	5	Tim R100P	HF	H	5.29–7.40	TimFe900DPA	Ws4IA	648	1168	a	TD	64	9½x3¼x	C
54	Linn.....A-15	.....	120	....	9000	6000	7.50/20S	8.25/20S	Her JXE3	6–3½x4¼	245	6.5	184	91–3200	7–2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	T	.....	None	....
55	.....A-25	.....	156	....	11200	6200	7.50/20S	8.25/20	Her JXE3	6–3½x4¼	245	6.5	184	91–3200	7–2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	X	.....	None	....
56	.....A-35	.....	169	....	14700	7900	7.50/20D	8.25/20	Her JXC	6–3¾x4¼	282	6.7	207	103–3200	7–2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....
57	.....A-45	.....	205	....	16900	8100	7.50/20D	8.25/20	Her JXC	6–3¾x4¼	282	6.7	207	103–3200	7–2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....
58	Mar. Her...DVL-4	.....	90	118	‡6750	.....	7.50/16S	8.25/18S	Willys MB	4–3½x4⅛	134	6.4	105	60–4000	3–2.33x5.48	Y	Own	3	(Front Drive)	.....	.....	7.10	Own	4IH	202	327	M2	.....	.....	None	....
59	Peterbilt(D)...280	.....	175	Opt	35000	12500	10.00/20D	11.00/22	Cum HB600	6–4⅞x6	672	17	500	150–1800	7–4½x16½	Y	Spl 8041	12	U-200P	2F	R	** –6.42	TimFe900DPA	Ws4IA	738	1052	...	TD	86½	10⅜x3½x	CT

▲—Includes cab. ♦—Cowl to axle.
■—Air brake equipment optional on F-8, Front 16x2¼, Rear 16½x5½.
‡—8200 for 8.25/18 tires.

●—Reinforcement 6.58x2.21x.125 extended to include front spring rear brackets and rear spring front bracket.
†—Reinforcement 8.5x2.56x.15 starts at front spring rear brackets and ends behind rear spring front brackets.

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A SCARLET TANAGER WHICH SUMMERS IN NOVA SCOTIA MAY WINTER AS FAR SOUTH AS PERU, RETURNING ANNUALLY TO THE VERY SAME NEST! EVEN WITH THE COSTLIEST, MOST MODERN INSTRUMENTS, AN AVIATOR MIGHT FAIL TO EQUAL THAT FOR ACCURACY. SCIENTISTS CANNOT EXPLAIN HOW SCARLET TANAGERS NAVIGATE THOUSANDS OF MILES BACK TO A PIN POINT ON THE GLOBE!

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(Continued from Page 90)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Reo.....E-19X.....		125	125	8000	4400▲	7.00/20S	8.25/20S	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	WG T97	4	Tim 53547	SF	H	4.57–6.16	Tim 30000	LT4IH	310	482	var	TX	60⅝	8⅛x2⅛x⅜	T
2	.....E-19A.....		125	125	16000	4950▲	7.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	60⅝	8⅛x2⅛x⅜	T
3	.....E-19T.....		125	125	16000	5410▲	8.25/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	WG T97	4	Tim E300	HFd	H	6.13–8.10	Tim 30000	LT4IVH	310	482	var	TX	60⅝	8⅛x2⅛x⅜	T
4	.....E-19B.....		150	150	16000	5035▲	7.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	85⅝	8⅛x2⅛x⅜	T
5	.....E-19C.....		165	165	16000	5120▲	7.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IHV	310	482	var	TX	100⅝	8⅛x2⅛x⅜	Tf
6	.....E-19L.....		187½	187½	16000	5250▲	8.25/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7–2⅝x10.7	Y	Cla 185F	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	123⅝	9x3x¼	T
7	.....E-20A.....		125	125	16000	5275▲	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2⅛x⅜	T
8	.....E-20T.....		125	125	16000	5735▲	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T97	4	Tim E300	HF	H	6.13–8.10	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2⅛x⅜	T
9	.....E-20B.....		150	150	16000	5400▲	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	85⅝	8⅛x2⅛x⅜	T
10	.....E-20C.....		170	170	16000	5535▲	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	105⅝	9x3x¼	Tf
11	.....E-20L.....		187	187	16000	5650▲	8.25/20	8.25/20	Own 255	6–3⅝x4½	255	6.7	189	107–3400	7–2½x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	123⅝	9x3x¼	T
12	.....E-21A.....		125	125	16500	5315▲	8.25/20	8.25/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2⅛x⅜	T
13	.....E-21B.....		150	150	16500	5440▲	8.25/20	8.25/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	85⅝	9x3x¼	T
14	.....E-21C.....		170	170	16500	5575▲	8.25/20	8.25/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	105⅝	9x3x¼	T
15	.....E-21L.....		185	185	16500	5690▲	8.25/20	8.25/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	120⅝	9x3x¼	Tf
16	.....E-21RA.....		130	130	19000	6165▲	9.00/20	9.00/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
17	.....E-21RT.....		130	130	19000	6740▲	9.00/20	9.00/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla 205V	5	Tim H300△	HFd	H	6.67–8.85	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
18	.....E-21RT.....		150	150	19000	6330▲	9.00/20	9.00/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	85⅝	9x3x¼	T
19	.....E-21RC.....		170	170	19000	6465▲	9.00/20	9.00/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	105⅝	9x3x¼	Tf
20	.....E-21RL.....		185	185	19000	6600▲	9.00/20	9.00/20	Own 292●	6–3⅞x4⅛	292	6.5	224	124–3300	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	120⅝	9¼x3⅛x⅜	Tf
21	.....E-22A.....		130	130	20000	6165▲	9.00/20	9.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
22	.....E-22T.....		130	130	20000	6740▲	9.00/20	9.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim H300	HFd	H	6.67–8.85	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
23	.....E-22B.....		150	150	20000	6330▲	9.00/20	9.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	85⅝	9x3x¼	T
24	.....E-22C.....		170	170	20000	6465▲	9.00/20	9.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	105⅝	9x3x¼	Tf
25	.....E-22L.....		185	185	20000	6600▲	9.00/20	9.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim H100△	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	120⅝	9¼x3⅛x⅜	Tf
26	.....E-22RA.....		130	130	22000	6705▲	10.00/20	10.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9x3x¼	T
27	.....E-22RT.....		130	130	22000	7205▲	10.00/20	10.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim L300△	HFd	H	6.32–8.22	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9x3x¼	T
28	.....E-22RB.....		150	150	22000	6910▲	10.00/20	10.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	85⅝	9x3x¼	T
29	.....E-22RC.....		170	170	22000	7100▲	10.00/20	10.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	105⅝	9x3x¼	Tf
30	.....E-22RL.....		185	185	22000	7260▲	10.00/20	10.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 205V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	120⅝	9¼x3⅛x⅜	Tf
31	.....E-22SA.....		130	130	24000	7630▲	10.00/20	11.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 290V	5	Tim Q100△	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	65⅝	9¼x3⅛x⅜	T
32	.....E-22ST.....		130	130	24000	8090▲	10.00/20	11.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 290V	5	Tim Q300△	HFd	H	6.53–8.53	Tim 35000	TWs4IA	638	934	var	TX	65⅝	9¼x3⅛x⅜	T
33	.....E-22SB.....		150	150	24000	7810▲	10.00/20	11.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 290V	5	Tim Q100△	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	85⅝	9¼x3⅛x⅜	T
34	.....E-22SC.....		170	170	24000	7995▲	10.00/20	11.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 290V	5	Tim Q100△	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	105⅝	9¼x3⅛x⅜	Tf
35	.....E-22SL.....		185	185	24000	8150▲	10.00/20	11.00/20	Own 331♦	6–4⅛x4½	331	6.4	264	140–3200	7–2x9.408	Y	Cla 290V	5	Tim Q100△	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	120⅝	9¼x3⅛x⅜	Tf
36	.....E-23SA.....		130	130	24000	7190▲	9.00/20	10.00/20	Con T6371	6–4⅛x4⅝	371	5.8	294	126–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9⅛x3⅛x⅜	T
37	.....E-23ST.....		130	130	24000	7490▲	9.00/20	10.00/20	Con T6371	6–4⅛x4⅝	371	5.8	294	126–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9⅛x3⅛x⅜	T
38	.....E-23SB.....		150	150	24000	7335▲	9.00/20	10.00/20	Con T6371	6–4⅛x4⅝	371	5.8	294	126–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	85⅝	9⅛x3⅛x⅜	T
39	.....E-23SC.....		170	170	24000	7505▲	9.00/20	10.00/20	Con T6371	6–4⅛x4⅝	371	5.8	294	126–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	105⅝	9⅛x3⅛x⅜	Tf
40	.....E-23SL.....		185	185	24000	7650▲	9.00/20	10.00/20	Con T6371	6–4⅛x4⅝	371	5.8	294	126–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	120⅝	9⅛x3⅛x⅜	Tf
41	.....E-23A.....		130	130	24000	7630▲	10.00/20	10.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	65⅝	9⅛x3⅛x⅜	T
42	.....E-23T.....		130	130	24000	8120▲	10.00/20	10.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	65⅝	9⅛x3⅛x⅜	T
43	.....E-23B.....		150	150	24000	7790▲	10.00/20	10.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	85⅝	9⅛x3⅛x⅜	T
44	.....E-23C.....		170	170	24000	7950▲	10.00/20	10.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	105⅝	9⅛x3⅛x⅜	Tf
45	.....E-23L.....		185	185	24000	8090▲	10.00/20	10.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim L100△	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	120⅝	9⅛x3⅛x⅜	Tf
46	.....E-23RA.....		130	130	26000	8020▲	10.00/20	11.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim Q100△	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	65⅝	9⅛x3⅛x⅜	T
47	.....E-23RT.....		130	130	26000	8480▲	10.00/20	11.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim Q100△	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	65⅝	9⅛x3⅛x⅜	T
48	.....E-23RB.....		150	150	26000	8175▲	10.00/20	11.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim Q100△	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	85⅝	9⅛x3⅛x⅜	T
49	.....E-23RC.....		170	170	26000	8360▲	10.00/20	11.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim Q100△	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	105⅝	9⅛x3⅛x⅜	Tf
50	.....E-23RL.....		185	185	26000	8520▲	10.00/20	11.00/20	Con T6427	6–4⅜x4⅞	427	5.9	338	145–2600	7–2⅛x13.6	Y	Cla 270V	5	Tim Q100△	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	120⅝	9¼x3⅛x⅜	Tf
51	.....30A.....		145	145	32000	11280▲	11.00/20	11.00/24	Con R6513	6–4½x5⅜	513	5.8	392	167–2600	7–3¼x14.7	Y	Spi 6252A	5	Tim S300△	HFd	H	6.42–8.38	Tim 36000	TWs4IA	722	1038	var	TI	67½	10⅛x3⅛x⅜	T
52	.....30B.....		165	165	32000	11360▲	11.00/20	11.00/24	Con R6513	6–4½x5⅜	513	5.8	392	167–2600	7–3¼x14.7	Y	Spi 6252A	5	Tim U200△	HFd	H	7.08	Tim 36000	TWs4IA	722	1038	var	TI	87½	10⅛x3⅛x⅜	T
53	.....31A.....		145	145	32000	11280▲	11.00/20	11.00/24	Con R6602	6–4⅛x5⅜	602	5.8	456	194–2600	7–3¼x14.7	Y	Spi 6252A	5	Tim S300△	HFd	H	6.42–8.38	Tim 36000	TWs4IA	722	1038	var	TI	67½	10⅛x3⅛x⅜	T
54	.....31B.....		165	165	32000	11360▲	11.00/20	11.00/24	Con R6602	6–4⅛x5⅜	602	5.8	456	194–2600	7–3¼x14.7	Y	Spi 6252A	5	Tim U200△	HFd	H	7.08	Tim 36000	TWs4IA	722	1038	var	TI	87½	10⅛x3⅛x⅜	T
55	Sterling....HD97.....		148	175	24000	9150	9.00/20	11.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu 5A43	5	Tim Q100DPH	FHy	R	5.29–7.80	Tim 35011H	T4IHV	524	926	A	TX	67	9x7x¼	A
56	.....HD105.....		148	175	24000	9550	10.00/20	11.00/22	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu 5A43	5	Tim R100DPH	FHy	R	5.29–7.40	Tim 35011H	T4IHV	524	926	A	TX	67	9x3¼x¼	A
57	.....HD115.....		148	175	32000	10650	10.00/20	11.00/24	Wau 6SRKR	6–4⅝x5⅛	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62	5	Tim S200P	2F	R	6.42–9.83	Tim 36000TW	Ws4IA	722	1054	A	TX	67	9x3¼x¼	A
58	.....HD145.....		148	175	36000	11250	11.00/20	12.00/24	Wau 6SRKR	6–4⅝x5⅛	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62	5	Tim 79721W	2F	R	7.69–11.36	Tim 36000TW	Ws4IA	670	1118	A	TX	67	9¼x3⅝x⅜	A
59	(D).....HD115H.....		158	185	32000	11950	10.00/20	11.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	Tim S200P	2F	R	6.42–9.83	Tim 36000TW	Ws4IA	722	1054	A	TX	68	9x3¼x¼	A
60	(D).....HD145H.....		158	185	36000	12550	11.00/20	12.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	Tim 79721W	2F	R	7.69–11.36	Tim 36000TW	Ws4IA	670	1118	A	TX	68	9¼x3⅝x⅜	A
61	.....HC97.....		148	175	24000	9200	9.00/20	11.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu 5A43	5	Own 97H	CD	R	6.70–10.82	Tim 35011H	T4IHV	518	852	A	TX	67	9x7x¼	A
62	.....HC105.....		148	175	28000	9700	10.00/20	11.00/22	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7–2⅝x12½	Y	Fu 5A43§	15	Own 137H	CD	R	6.70–10.82	Tim 35011H	TL4IHV	540	842	A	TX	67	9x3¼x¼	A
63	.....HC115.....		148	175	32000	10350	10.00/20	11.00/24	Wau 6SRKR	6–4⅝x5⅛	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62‡	15	Own 137W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	648	1064	A	TX	67	9x3¼x¼	A
64	.....HC144.....		148	175	36000	11250	10.00/22	12.00/24	Wau 6SRKR	6–4⅝x5⅛	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62‡	15	Own 148W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	708	1102	A	TX	67	9¼x3⅝x⅜	A
65	.....HC147.....		148	175	36000	11500	10.00/22	12.00/24	Wau 6SRKR	6–4⅝x5⅛	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62‡	15	Own 147W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	708	1102	A	TX	67	9¼x3⅝x⅜	A
66	.....HC175.....		167	185	45000	14600	12.00/24†	14.00/24‡	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86●	12	Own 175W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	JX	77	9¼x3⅝x⅜	A
67	.....HC250.....		178	190	60000	18400	14.00/24†	14.00/24‡	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86●	12	Own 251W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	JX	95	12x3½x⅜	AL
68	(D).....HC115H.....		167	185	32000	12250	10.00/20	11.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86●	12	Own 137W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	648	1064	A	TX	77	9¼x3⅝x⅜	A
69	(D).....HC175H.....		167	185	45000	14930	12.00/24†	14.00/24‡	Cum HBD600	6–4½x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86●	12	Own 175W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	TX	77	9¼x3⅝x⅜	A
70	(D).....HC250H.....		178	190	60000	18700	14.00/24†	14.00/24‡	Cum HBD600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86●	12	Own 251W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	JX	95	12x3½x⅜	AL
	Studebaker....2R5	1022	112	112	4600	2125	6.00/168	6.50/168	Own 1R	6–3x4	170	7.0	138	85–4000	4–2⅛x5⅛	N	Own 673519	3	Own 679817	Hy	H	●●–4.82	Own 678860	Wg4IH	170	276	CO	2I	40	7x2 ¼x ½	T
71	.....2R10	1088	122	122	6100	2400	6.50/168	7.50/168	Own 1R	6–3x4	170	7.0	138	85–4000	4–2⅛x5⅛	N	Own 673519	3	Own 679819	SF	H	5.57–4.86	Own 678860	Wg4IH	198	314	CO	2I	50	7 ⅛x2 ⅛x ⅜	T
72	.....2R15–21	1236	121	121	7800	3005	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4–2⅛x5⅛	N	Own 676044	4	Own 677768	SF	H	5.83–6.66	Own 677091	LH4IH	226	342	Ce	TX	50 ⅛	8x2 ⅛x ⅛	T
73	.....2R15–31	1255	131	131	10000	3065	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4–2⅛x5⅛	N	Own 676044	4	Own 677768	SF	H	5.83–6.66	Own 677091	LH4IH	226	342	Ce	TX	60 ⅛	8⅛x2 ⅛x ⅜	T
74	.....2R16	1291	131	195	14000	3695	6.50/20D	8.25/20	Own 3R	6–3⅞x4⅜	226	6.5	174	94–3400	4–2½x5½	N	Own 676045	4	Own 675732♦♦	SF	H	6.66–5.66	Own 674484	LH4IH	294	442	Ce	TX	60¼	8⅛x2 ⅛x ⅜	T

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▲ Includes Cab
♦—Two speed axle available.
§ Auxiliary Transmission Own OJ.

‡ Rear only; Front 12.00/24.
● Auxiliary transmission Own FJ.
♦♦—Two speed 6.13–8.10 optional.

●—Model 288 engine can be furnished.
●—Model 310 engine can be furnished.

△—Double reduction and 2-speed available.
† Rear only; Front 11.00/24.

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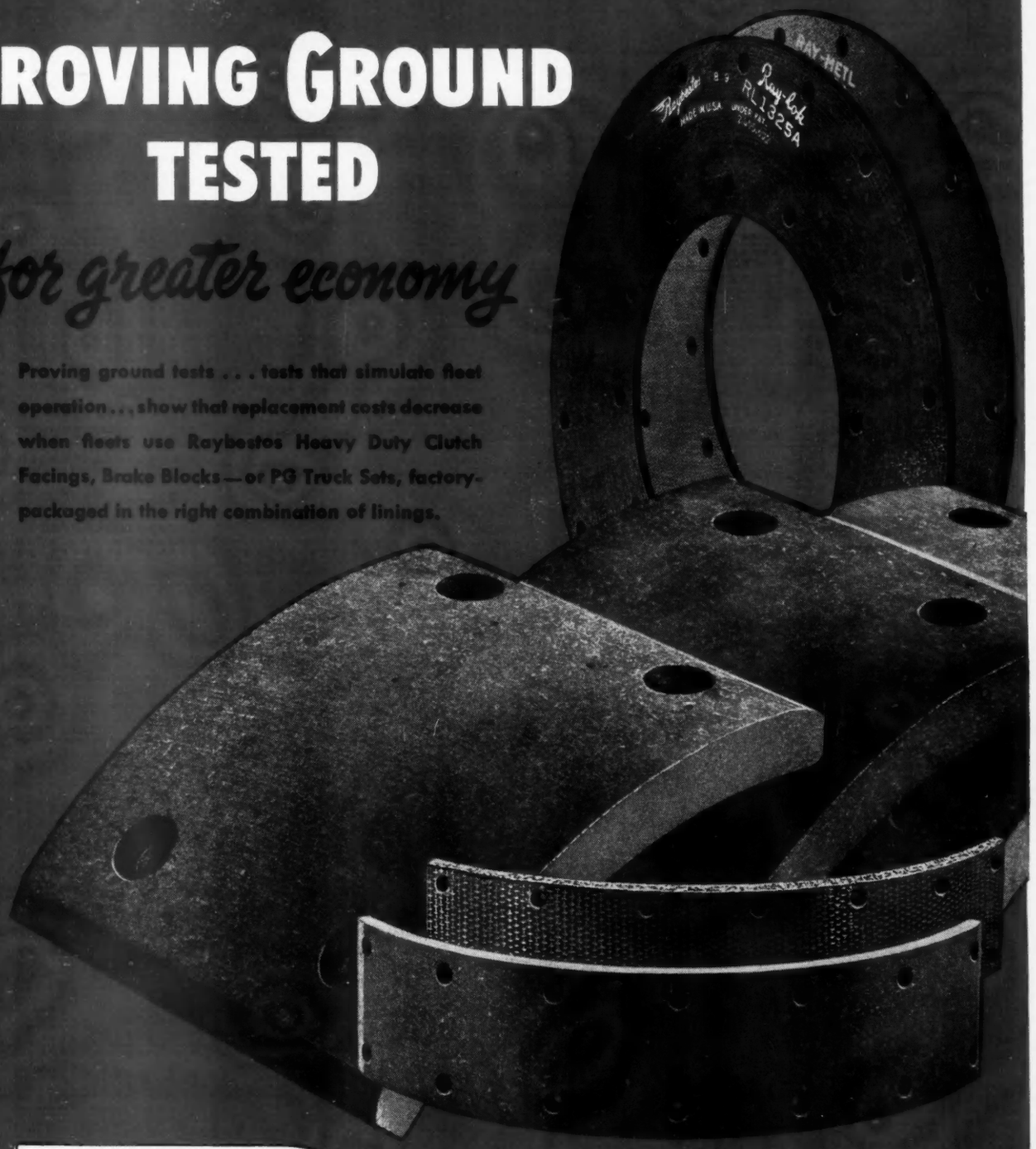
for greater economy

Proving ground tests . . . tests that simulate fleet operation . . . show that replacement costs decrease when fleets use Raybestos Heavy Duty Clutch Facings, Brake Blocks—or PG Truck Sets, factory-packaged in the right combination of linings.



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America's Biggest Selling **BRAKE LINING**

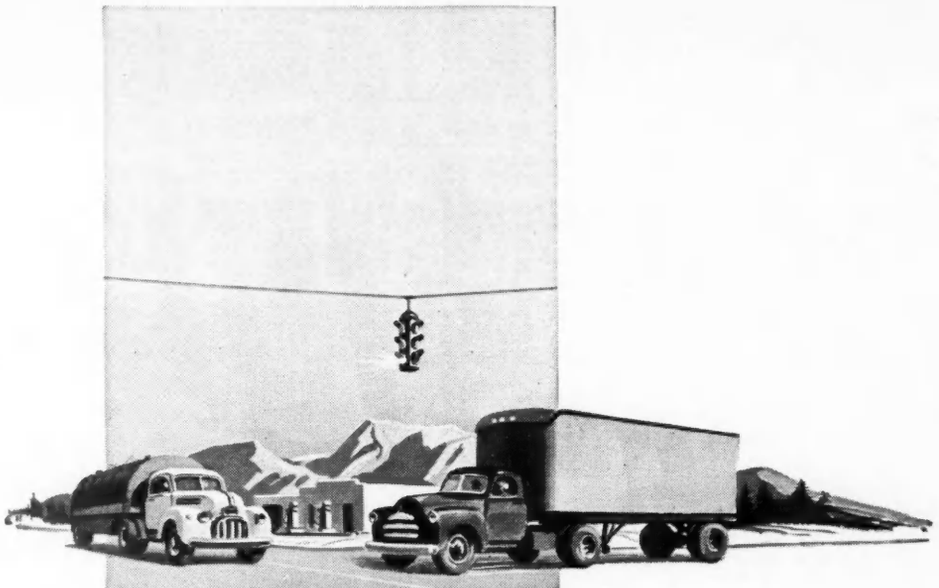
RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hose • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

(Continued from Page 92)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Studebaker, Cont.																														
1	.....2R16A	1326	131	195	14000	3695	6.50/20 D	8.25/20	Own 4R	6-3 7/16 x4 3/4	245	7.0	205	102–3200	4–2 1/4 x5	N	Own 678790	4	Own 675732†	SF	H	6.66–5.83	Own 674484	LH4IH	294	442	Ce	TX	60 1/4	8 1/2 x2 31/32 x 7/16	T
2	.....2R17	1592	131	195	16000	4180	7.50/20D	8.25/20	Own 3R	6-3 7/16 x4 3/4	226	6.5	174	94–3400	4–2 1/4 x5 11/16	Y	Own 676045	4	Own 675571††	Hy	H	6.80–....	Own 674484	LH4IH	367	553	Ce	TX	60 1/4	8 1/2 x2 31/32 x 7/16	T
3	.....2R17A	1627	131	195	16000	4180	7.50/20 D	9.00/20	Own 4R	6-3 7/16 x4 3/4	245	7.0	205	102–3200	4–2 1/4 x5	N	Own 678794	4	Own 675571††	Hy	H	6.80–6.20	Own 674484	LH4IH	367	553	Ce	TX	60 1/4	8 1/2 x2 31/32 x 7/16	P
4	Ward La Fr...D-1	.....	149	220	25000	▲ 9500	10.00/20	11.00/20	Con T6427	6-4 7/16 x4 7/8	427	5.1	340	152–2600	7–2 1/8 x13 1/2	Y	Ful 5A430	5	Tim Q-100	B	R	**–6.83	Tim 35017TW	Ws4A	600	928	C	TM	68 1/4	9 1/8 x3x 1/4	T
5	.....D-1C	.....	149	220	29000	▲ 9500	11.00/20	11.00/22	Con T6427	6-4 7/16 x4 7/8	427	5.1	340	152–2600	7–2 1/8 x13 1/2	Y	Ful 5A430	5	Tim S-200	S2	R	**–7.08	Tim 35017TW	Ws4A	673	1031	C	TM	68 1/4	9 1/8 x3x 1/4	T
6	.....D-2K	.....	149	220	29000	▲10000	11.00/20	11.00/22	Wau 140GK	6-4 1/2 x5 1/2	525	6.4	425	168–2400	7–2 3/4 x13 11/16	Y	Ful 5A620	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68 1/4	10x3 1/2 x 1/4	T
7	.....D-2Z	.....	149	220	29000	▲10000	11.00/20	11.00/22	Wau 140GZ	6-4 1/2 x5 1/2	554	6.4	456	184–2400	7–3 1/4 x13 1/2	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68 1/4	10x3 1/2 x 1/4	T
8	.....D-3	.....	149	220	29000	▲10000	11.00/20	11.00/22	Con R6572	6-4 3/4 x5 5/8	572	5.9	440	189–2600	7–3 1/4 x14 1/2	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68 1/4	10x3 1/2 x 1/4	T
9	.....D-3S	.....	149	220	29000	▲10000	11.00/20	11.00/22	Con R6602	6-4 1/2 x5 5/8	602	5.9	463	198–2600	7–3 1/4 x14 1/2	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68 1/4	10x3 1/2 x 1/4	T
10	(D).....D-5	.....	149	220	35000	▲12500	11.00/22	11.00/22	Cum HB600	6-4 1/2 x6	672	17	500	150–1800	7–4 1/2 x16 3/4	Y	Ful 5C650	5	Tim U-200	S2	R	**–6.42	Tim 27463	Ws4B	681	1041	C	TM	68 1/4	10x3 1/2 x 1/4	T
11	Willys Pan. Del. 473	*1295	104	104	4000	*2620	6.50/15S	.....	Own 473	4–3 1/2 x4 3/4	134	7.4	114	72–4000	3–2.33x5.48	N	WG T96	3	8pi 23–1	Hy	H	4.88–5.38	Own I Tr	B4IH	133	220	a	2I	.....	5x2 1/4 x.063	T†D
12	Willys.....HT	*1220	118	118	4250	*2722	6.00/16S	6.50/16S	Own 473	4–3 1/2 x4 3/4	134	7.4	114	72–4000	3–2.33x5.48	N	WG T96	3	8pi 41	Hy	H	** –5.38	Cla F-154	B4IH	176	276	a	2I	42.28	5 1/2 x2x 1/4	TD
	Four-Wheel-Drive																														
13	Coleman.....G-55	.....	136	150	30000	11750	11.00/20	12.00/20	Buda LO-525	6–4 1/2 x5 1/2	525	6.7	400	150–2200	7–3x7 3/4	Y	Fu 5A650	5	OW-C375FXa	.....	.....	9.66	OW	TW IA	598	9214	...	FD	96	9x3x3 1/2	C
14	Corbitt...G101F20	.....	Opt	....	20000	.....	8.25/20	9.00/20	Con M6330	6–4x4 3/8	330	6.1	248	104–2800	7–2 1/8 x12	Y	Cla 205VO	5	Tim H100	HF	H	** –6.8	Tim F35	LT4IHV	420	654	a	TX	Opt	8x3 1/4 x 1/4	T
15	.....G301F24	.....	Opt	....	24000	.....	9.00/20	10.00/20	Con B6371	6–4 1/2 x5 1/2	371	6.0	280	100–2600	7–2 1/8 x13 1/2	Y	Fu 5A43	5	Tim R2090	2F	H	** –8.43	Tim F2090	LT4IHV	520	788	a	TD	Opt	9x2 3/4 x 1/4	T
16	.....G601F31	.....	Opt	....	3200'	.....	10.00/20	11.00/24	Con R6513	6–4 1/2 x5 5/8	513	5.9	400	170–2600	7–3 1/2 x14 1/2	Y	Fu 5A620	5	Tim 1357	2F	H	6.65–7.33	Tim F3110	Ws4IA	644	984	a	TD	Opt	10 1/2 x3 1/4 x 1/4	TL
17	(T)(D) D808U32	.....	Opt	....	32000	.....	10.00/20	11.00/24	Cum HRBB600	6–5 1/2 x6	743	17	540	175–2000	7–4 1/2 x16 1/2	Y	Fu 5C720	5	Tim 1758	2F	H	** –7.33	Tim F3100	Ws4IA	644	984	a	TD	Opt	10 1/2 x3 1/4 x 1/4	TL
18	Dodge....B-2-PW	.....	126	126	8700	.....	7.50/16S	9.00/16-S	Own T-137	6–3 1/4 x4 1/2	230	6.7	186	94–3200	4–2 1/2 x4.8	Y	NP-88790	4	Own T-137	HyF	H	4.89–5.83	Own T-137	O41H	210	311	Co	TX	52 11/16	11/16 x2 1/8 x6 1/2	C
19	FWD.....LD	.....	124	184	.....	▲5500	6.50/20D	9.00/20	HerCB-QXLD3	6–3 1/8 x4 1/4	236	6.7	190	97–3200	7–2 1/2 x10 1/8	Y	WG T9A	8	Tim F30	SF	H	** –6.67	Tim 53547	T4IHV	324	518	a	T4	60	8x3x 1/2	T
20	.....HA	.....	132	168	.....	▲7470	8.25/20D	10.00/20	Wau BZ	6–4x4 1/4	320	6.9	237	105–3000	7–2 3/4 x10 1/4	Y	Own H	5	Own H	SF	H	6.6 –9.01	Own H	L4IHV	391	807	a	T4	79 1/2	9x3x 1/4	T
21	.....HR	.....	132	168	.....	▲8000	9.00/20	10.00/20	Wau MZA	6–4 1/4 x4 3/4	404	5.6	291	129–2800	7–2 3/4 x12 1/2	Y	Own H	5	Own H	SF	H	6.6 –9.01	Own H	L4IHV	391	807	a	T4	79 1/2	9x3x 1/4	T
22	.....HG	.....	154	154	.....	▲8050	9.00/20	10.00/20	Wau MZA	6–4 1/4 x4 3/4	404	5.6	291	129–2800	7–2 3/4 x12 1/2	Y	Own H	5	Own H	SF	H	6.6 –9.01	Own H	L4IHV	391	807	a	T4	89 3/4	7 1/8 x3x 11/16	T
23	.....HRC	.....	139	163	.....	▲9500	10.00/20D	11.00/20	Wau 140GKB	6–4 1/2 x5 1/2	525	6.4	425	172–2600	7–3 1/4 x13 11/16	Y	Own HRC	10	Own HRC	SF	H	5.4 –9.0	Own HRC	Wg4IHA	419	611	a	T4	74 1/2	9x3x 1/4	T
24	.....HRY	.....	144	168	.....	▲8400	10.00/20D	11.00/20	Wau MZA	6–4 1/4 x4 3/4	404	5.6	291	129–2800	7–2 3/4 x12 1/2	Y	Own HRY	5	Own HRY	SF	H	6.6 –9.0	Own HRY	L4IHV	473	836	a	T4	79 1/2	9x3x 1/4	T
25	.....SU	.....	150	182	.....	▲10570	11.00/20D	12.00/20	Wau 8RKR	6–4 3/8 x5 1/8	517	5.5	369	126–2250	7–3x13 1/4	Y	Own U	5	Own U	BF	H	6.7 –9.8	Own U	L4IHV	512	985	a	T4	90	8 1/8 x3x 11/16	T
26	.....YU	.....	150	182	.....	▲11570	11.00/20D	12.00/20	Wau 140GK	6–4 1/2 x5 1/2	525	6.1	425	142–2250	7–3 1/4 x13 11/16	Y	Own S	5	Own YU	SF	H	5.7–10.8	Own YU	Wg4IHV	539	804	a	T4	90	8 1/8 x3x 11/16	T
27	.....ZU	.....	150	182	.....	▲12540	11.00/20D	12.00/20	Wau 140GZ	6–4 5/8 x5 1/2	554	6.4	460	188–2600	7–3 1/4 x13 11/16	Y	Own S	5	Own ZU	SF	H	6.6–11.4	Own ZU	Wg4IHA	640	1106	a	T4	90	10 1/8 x3x 11/16	C
28	.....M7G	.....	150	180	.....	▲15500	12.00/20D	12.00/24	Wau 145GK	6–5 1/4 x6	779	6.2	590	186–2000	7–3 1/2 x17 1/4	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	644	1090	a	T4	90	10 1/8 x3x 11/16	C
29	(D).....M7D	.....	150	180	.....	▲16100	12.00/20D	12.00/24	Bu DC844	6–5 1/4 x6 1/2	844	...	605	180–1800	7–3 1/4 x17	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	644	1090	a	T4	90	10 1/8 x3x 11/16	C
30	.....M10G	.....	150	180	.....	▲15800	11.00/24D	12.00/24	Wau 145GK	6–5 1/4 x6	779	6.2	590	186–2000	7–3 1/2 x17 1/4	Y	Own M	10	Tim 79721W	2F	H	6.7 –9.2	WisF408CWXI	WW4IA	693	1144	a	T4	90	10 1/8 x3x 11/16	C
31	(D).....M10D	.....	150	180	.....	▲16400	11.00/24D	12.00/24	Bu DC844	6–5 1/4 x6 1/2	844	...	605	180–1800	7–3 1/4 x17	Y	Own M	10	Tim 79721W	2F	H	6.7 –9.2	WisF408CWXI	WW4IA	693	1144	a	T4	90	10 1/8 x3x 11/16	C
32	Marmon-MH440-4	.....	158	170	24000	▲9800	9.00/20D	10.00/20	Her WXLC3	6–4 1/4 x4 3/4	404	5.4	293	118–2800	7–2 1/2 x13 1/4	Y	Fu	5	Own	2B	H	** –8.43	Own	W....A	584	887	c	F	72	9 11/16 x3x 1/4	T
33	Herr..MH-RC 4	.....	161	....	26000	▲10550	9.00/20	10.00/20	Her RXC	6–4 5/8 x5 1/4	529	6.3	390	131–2200	7–3x13 1/4	Y	Fu	5	Own	2B	H	** –8.43	Own	W....A	584	887	c	F	72	9 11/16 x3x 1/4	T
34	.....MH555-4	.....	161	173	30000	▲11550	10.00/20D	11.00/20	Her RXC	6–4 5/8 x5 1/4	529	6.3	390	131–2200	7–3x13 1/4	Y	Fu	5	Own	2B	H	** –8.15	Own	W....A	696	1039	c	F	72	10 1/8 x3x 1/4	T
35	.....MH-RH 4	.....	161	....	33000	▲11980	10.00/20	11.00/20	Her RXLDH	6–4 3/4 x5 1/4	558	6.1	440	180–2600	7–3x13 1/4	Y	Fu	5	Own	2B	H	** –8.15	Own	W....A	696	1039	c	F	72	10 1/8 x3x 1/4	T
36	(C).....R5-4	.....	134	134	15500	▲5100	7.50/20D	7.50/20	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –6.67	Own	F.....H	303	563	a	F	60 1/8	7x2 3/4 x 1/2	T
37	(C).....R6-4	.....	158	158	15500	▲5331	7.50/20D	7.50/20	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –6.67	Own	F.....H	303	563	a	F	84 1/8	7x2 3/4 x 1/2	T
38	(C).....LD7-4	.....	114	....	5300	▲3500	15'	15'	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –4.27	Own	F.....H	162	259	A	F	40 1/8	5 11/16 x2 1/4 x 1/8	T
39	(C).....R3-4	.....	122	....	6800	▲4100	7.50/17	7.50/17	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –4.86	Own	F.....H	186	308	A	F	48	6x2 1/4 x 1/8	T
40	(C).....R4-4	.....	134	....	10000	▲4900	7.00/20S	7.00/20	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –5.33	Own	F.....H	303	563	A	F	60 1/8	7x2 3/4 x 1/2	T
41	(C)..R5-A-COE4	.....	110	158	15500	▲5360	7.50/20D	7.50/20	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	8	H	** –6.67	Own	F.....H	303	563	A	F	60 1/8	7.08x2.88x 1/2	T
42	(C).....V5-4	.....	134	176	17000	▲5294	7.50/20D	8.25/20	Ford	8–3 1/8 x3 3/4	239	6.4	180	100–3800	3–2 1/2x4.71	N	Ford	4	Ford	H	H	** –6.80	Own	F.....H	302	506	A	F	60	7.08x2.79x	T
43	(C).....Q5-4	.....	136	....	21500	▲7100	9.00/20	10.00/20	Ford	8–3 1/2 x4 1/2	337	6.4	255	145–3600	3–2 1/2x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	61	9x3x 1/4	T
44	(C).....Q6-4	.....	160	....	21500	▲7200	9.00/20	10.00/20	Ford	8–3 1/2 x4 1/2	337	6.4	255	145–3600	3–2 1/2x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	73	9x3x 1/4	T
45	(C).....Q7-4	.....	196	....	21500	▲7350	9.00/20	10.00/20	Ford	8–3 1/2 x4 1/2	337	6.4	255	145–3600	3–2 1/2x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	85	9x3x 1/4	T
46	(C).....Q5-L4	.....	148	....	21500	▲7150	9.00/20	10.00/20	Ford	8–3 1/2 x4 1/2	337	6.4	255	145–3600	3–2 1/2x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	104	8x3x 1/4	T
47	(C).....Q6-L4	.....	179	....	21500	▲7275	9.00/20	10.00/20	Ford	8–3 1/2 x4 1/2	337	6.4	255	145–3600	3–2 1/2x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F.....H	444	697	A	F	121	9x3x 1/4	T
48	Oshkosh....W-212	.....	144	159	21000	▲ 8430	9.00/20D	9.00/20	Her JXLD	6–4x4 1/2	339	...	272	130–3000	7–2 1/2 x10 11/16	Y	Fu 5A43	5	Own W212	SF	H	** –7.2	Own W212	W4IHDV	401	665	Co	PX	82	8x3x 1/4	Tf
49	.....W-312	.....	149	205	25000	▲10000	10.00/20D	11.00/20	Her WXLCO3	6–4 1/4 x4 3/4	404	...	312	139–2600	7–2 5/8 x13 3/4	Y	Fu 5A43	5	Own W312	SF	H	** –6.8	Own W312	W4IHDV	510	876	G	PX	82	8 1/4 x3x 1/2	TF
50	.....W1700	.....	150	205	28000	▲11000	11.00/20D	12.00/20S	Her RXC	6–4 5/8 x5 1/4	529	...	395	131–2200	7–3x13 1/4	Y	Fu 5A620	5	Own W1700	SF	H	** –6.4	Own 1700	W4IHDV	570	980	G	PX	82	8 1/4 x3x 1/2	TF
51	.....W-700	.....	150	205	30000	▲12000	11.00/20D	12.00/20	Her RXCO	6–4 3/4 x5 1/4	529	...	395	131–2200	7–3x12 3/4	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10 1/2 x3x 3/8	TF
52	(D)....W-703D	.....	150	205	30000	▲12700	11.00/20D	12.00/20	Her DRXC	6–4 5/8 x5 1/4	529	...	398	147–2200	7–3 1/2 x13 3/4	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10 1/2 x3x 3/8	TF
53	.....W-703	.....	150	205	30000	▲12200	11.00/20D	12.00/20	Her RXLD	6–4 3/4 x5 1/4	558	...	430	150–2200	7–3 1/2 x13 3/4	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10 1/2 x3x 3/8	TF
54	.....W-705	.....	150	205	30000	▲12200	11.00/20D	12.00/20	Her RXLD	6–4 3/4 x5 1/4	558	...	430	150–2200	7–3 1/2 x13 3/4	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10 1/2 x3x 3/8	TF
55	.....W-712	.....	150	205	34000	▲12600	11.00/20D	12.00/20	Her RXLDH	6–4 3/4 x5 1/4	558	...	462	190–2600	7–3 1/2 x13 3/4	Y	Fu 5A650	5	Own W712	2F	H	** –6.8	Own W712	L4IHV	630	975	G	PX	82	10 1/2 x3x 3/8	TF
56	(D).....W-906	.....	158	181	38000	▲15600	12.00/20D	14.00/20S	Cum HB600	6–4 1/2 x6	672	...	500	150–1800	7–4 1/2 x16	Y	Fu 4A86	12	Own W906	2F	H	** –6.2	Own W906	LT4IA	645	975	G	PX	90	10 1/2 x3 1/4 x 3/4	TF
57	(D).....W906R	.....	158	181	39000	▲15700	12.00/20D	14.00/20S	Cum HRB-600	6–5 1/2 x6	743	...	540	165–1800	7–4 1/2 x16	Y	Eu 4A86	12	Own W906R	2F	H	** –6.2	Own W906R	LT4IA	645	975	G	PX	90	10 1/2 x3 1/4 x 3/4	TF
58	.....W2200	.....	160	181	40000	▲16500	13.00/20D	14.00/20S	Bu MO779	6–5 1/4 x6	779	...	575	188–2100	7–3 3/4 x17	Y	Fu 4A86	12	Own W2200	2F	H	**–6.15	Own 2200	LT4IA	645	975	G	PX	90	10 1/2 x3 1/2 x 3/4	Tf
59	.....W2201	.....	160	181	40000	▲16500	13.00/20D	14.00/20S	Bu MO893	6–5 3/4 x6	893	...	670	200–1800	7–3 3/4 x17	Y	Fu 4A86	12	Own W2201	2F	H	**–6.15	Own 2201	LT4IA	645	975	G	PX	90	10 1/2 x3 1/2 x 3/4	TF
60	(D).....W2204	.....	160	181	46000	▲18500	13.00/20D	14.00/20S	Bu 6DC844	6–5 1/4 x6 1/8	844	...	605	180–1800	7–3 1/4 x17	Y	Fu 4A86	12	Own W2204	2F	H	** –6.4	Own 2204	LT4IA	780	1190	G	PX	90	10 1/2 x3 1/2 x 3/4	TF
61	(D).....W2205	.....	160	181	54000	▲19500	13.00/24D	14.00/24	Bu 6DC8844	6–5 1/2 x6 1/8	844	...	740	240–2100	7–3 1/4 x17	Y	Fu5A920	10	Own W2205	2F	H	** –6.3	Own W2205	LT4IA	780	1190	G	PX	90	10 1/2 x3 1/2 x 3/4	LF
62	.....W2206	.....	160	181	54000	▲19000	13.00/24D	14.00/24	HS 400	6–5 3/4 x7	■	...	930	295–2000	7–3 1/4 x14 1/8	Y	Fu5A1120	10	Own W2206	2F	H	** –6.3	Own W2206	LT4IA	780	1190	G	PX	90	10 1/2 x3 1/2 x 3/4	TF
63	(D).....W2208	.....	160	181	46000	▲17700	13.00/20D	14.00/20S	Cum NHB-600	6–5 1/2 x6	743	...	535	200–2100	7–4 1/2 x16 1/2	Y	Fu 4A86	12	Own W2208	2F	H	** –6.4	Own W2208	LT4IA	780	1190	G	PX	90	10 1/2 x3 1/2 x 3/4	TF
64	(D).....W2209	.....	160	181	54000	▲19500	13.00/24D	14.00/24	Cum NHRS600	6–5 1/2 x6	743	...	800	300–2100	7–4 1/2 x16 1/2	Y	Fu 5A1120	10	Own W2209	2F	H	** –6.30	Own W2209	LT4IA	780	1190	G	PX	90	10 1/2 x3 1/2 x 3/4	LF
65	Sterling....DD115	.....	160	178	32000	11500	10.00/20	11.00/24	Wau 6SRKR	6–4 1/4 x5 1/4	517	5.5	368	125–2250	7–3x13 1/4	Y	Fu 5A62‡	10	Tim 1357W	2F	H	6.52–8.6	Tim F3110W	Ws4IA	644	984	A	TX	76	9x3 1/4 x 1/4	A
66	(D)....DD145H	.....	167	185	36000	13900	11.00/20	12.00/24	Cum HB600	6–4 1/2 x6	672	17	500	150–1800	7–4 1/2 x16 1/2	Y	Fu 4B86▼	10	Tim 1758W	2F	H	7.33–10.3	Tim F409CW	Ws4IA	644	984	A	TX	77	9 1/4 x3 1/2 x 3/4	A

(Turn to Page 96, Please)

▲ Includes cab.
†† —Two speed 6.13–8.10 optional.
† —Two speed 6.13–8.10 and H.D. 6.20 or 6.80 optional.
* —Complete vehicle with pick-up type body.
▼ Timken T77 2-speed Transfer Case.
‡ —Timken T76-Two speed transfer case.
■ —1091 cu. in.



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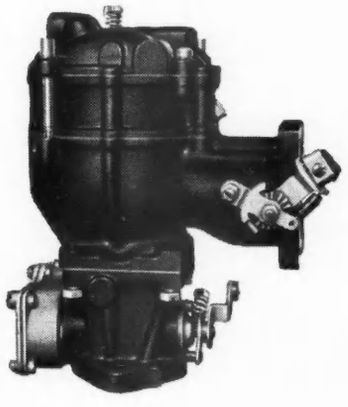

Just take a ride in a Zenith powered truck—and you'll know why Zenith is the engineers' choice for heavy-duty carburetion. You'll experience Zenith's smooth, fast acceleration, strong idling and freedom from stalling, its obedient response to your demands for power and speed. Then a look at the records will show that Zenith's unequalled performance *really lasts*—giving dependable and trouble-free operation year after year. For better carburetion in *your* heavy-duty equipment, insist on Zenith—the choice of experienced engineers for quality performance.

ZENITH CARBURETOR DIVISION OF
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AVIATION CORPORATION

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(Continued from Page 94)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Speeds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Walter (c.f.)..FZM	.....	126	150	24000	9000	12.00/20S	.....	Wau MZA	6–4¼x4¾	404	5.6	290	125–2600	7–2⅛x12½	Y	Own FJN	6	Own M8	2	H	** –8.00	Own FJ	O4IA	470	670	G	FI	84	12x3½x½	B
2	(c.f.).....AEB	.....	126	150	32000	13000	12.00/24S	.....	Wau 140GZ	6–4½x5½	554	6.2	440	150–2250	7–3¼x14	Y	Own FC	6	Own FCC	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	96	14x3¾x½	B
3	(c.f.).....AGB	.....	138	162	32000	14000	12.00/24S	.....	Wau 145GK	6–5¼x6	779	6.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FCR	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x½	B
4	(c.f.).....AGR	.....	138	162	42000	15000	12.00/24D	.....	Wau 145GK	6–5¼x6	779	6.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FCR	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x½	B
5	Ward La Fr..FD1	.....	.....	.....	35000	▲11500	11.00/22	11.00/22	Cont 6513	6–4½x5¾	513	5.9	405	180–2800	7–3¼x14½	..	Ful 5A620	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x⅄	C
6	(D).....FD2	.....	.....	.....	35000	▲12000	11.00/24	11.00/24	Cum HB600	6–5½x6	672	17.	500	150–1800	7–4½x16¾	..	Ful 5A920	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x⅄	C
7	Willys Jp....CJ-3A	1195*	80	80	3500	*2108	6.00/168	7..0/158	Own CJ-3A	4–3½x4⅜	134	6.5	105	60–4000	3–2.33x5.48	N	WG T90C	3‡	Spi 41	Hy½	H	** –5.38	Spi 25	B4IH	118	198	a	F	.....	4x1¾x⅄	P
8	.....4WD	1597*	118	118	5300	*3115	7.00/168	.....	Own 473	4–3½x4½	134	7.4	114	72–4000	3–2.33x5.48	N	WG T90C	3‡	Tim 51540	S½	H	** –5.38	Spi 25	B4IH	176	276	a	2I	42.28	5½x2x⅄	TD
	Six-Wheelers Wheels ▼ Driven																														
	Corbitt																														
9	.....G302R34-4R	.....	173	....	34500	.....	8.25/20	9.00/20	Con B6427	6–4⅄x4¼	427	5.9	325	127–2600	7–2⅞x13½	Y	Fu 5A430	5	Tim 1055	SdF	L	5.71–7.40	Tim 35000	Ws6IA	.....	.....	a	TX	88	8⅛x3¼x⅄	TL
10	.....G402R40-4R	.....	173	....	40000	.....	9.00/20	10.00/20	Cum T6427	6–4⅄x4⅛	427	6.3	336	151–2600	7–2⅞x13½	Y	Fu 5A620	5	Tim 1555	SdF	L	5.57–7.80	Tim 35000	Ws6IA	731	1058	a	TD	88	8⅛x3¼x⅄	TL
11	(T)(D)D808Q46-2C	.....	135	....	46000	.....	10.00/20	11.00/22	Cum HRBB600	6–5½x6	743	17.	540	175–2000	7–4½x16½	Y	Fu 5C720	5	Tim R300	2F	H	4.93–5.91	Tim FE900	Ws6IA	1032	1578	a	2M	68	8x3¼x¼	TL
12	(D) D802R46-4R	.....	188	....	46000	.....	10.00/20	11.00/20	Cum HRB600	6–5½x6	743	17.	540	165–1800	7–4½x16½	Y	Fu 10B1120	10	Tim SW3022	WF	L	4.71–6.17	Tim FE900	Ws6IA	1073	1554	a	TD	84	10½x3¼x¼	TL
13	Dodge...B-I-VX	.....	154	190	34000	.....	9.00/20	10.00/20	Own T159	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP 88450	5	Tim 8BD1555	HyF	..	6.8 –7.2	Tim FD900	O6IA	727	1056	C	TX	84	10x3x¼	CP
14	Duplex....TH6	.....	162	220	30000	9180	8.25/20	9.00/20	Her JXD	6–4x4½	320	6.2	240	113–3000	7–2½x10‡‡	Y	Fu 5B33▵	10	Tim 8BD1055	BF	L	**–6.16	Tim 32502H	L6IHV	513	839	A	TX	83¼	9½x3½x⅄	L
15	.....RH-6	.....	160	208	40000	11500	10.00/20	11.00/20	Her WXLC3	6–4¼x4¾	404	5.8	312	139–2600	7–2⅝x13¼	Y	Fu 5A43	5	Tim SD3010	2F	R	8.27	Tim 35100	WS6IA	1075	1525	A	TX	73¼	10½x3½x⅄	L
16	(D).....L6	.....	172	208	45000	15000	11.00/20	12.00/20	Cum HB600	6–4⅄x6	672	17.	495	150–1800	7–4½x16½	Y	Fu 5A920	5	Tim SD454	SF2	L	6.8–8.15	Tim 26450	Ws6IA	1137	1625	A	TX	77½	10½x3½x⅄	L
17	Federal....663MA	.....	189	225	40000	14500	10.00/20	10.00/22	Con R6602	6–4⅞x5½	602	...	466	205–3000	7–3¼x14½	Y	Fu 5A65▼	15	T SW3012P	WF	R	** –6.16	Tim FE900	Ws6IA	1082	1569	a	TD	108	10⅛x3¼x⅄	T
18	.....664MAB	.....	189	225	55000	15850	11.00/22	12.00/20	Con R6602	6–4⅞x5⅝	602	...	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SW456P	WF	R	** –7.6	Tim 27452W	Ws6IA	1308	1888	a	TD	108	10¼x3¼x⅄	T
19	.....664MA	.....	189	225	55000	15950	11.00/22	12.00/20	Con R6602	6–4⅞x5⅝	602	...	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SD462P	BR	R	** –8.15	Tim 27452W	Ws6IA	1092	1624	a	TD	108	10¼x3¼x⅄	T
20	.....629M	.....	163	199	27500	8600	8.25/20	9.00/20	Her JXDF	6–4x4¼	320	...	250	131–3200	7–2½x10‡‡	Y	Cla 205V‡‡▵	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9⅄x3½x¼	TL
21	.....629ML	.....	163	199	27500	8635	8.25/20	9.00/20	Her JXLDF	6–4x4½	339	...	272	131–3200	7–2½x10‡‡	Y	Cla 205V‡‡▵	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9⅄x3½x¼	T
22	.....635M	.....	167	203	36000	10400	9.00/20	9.00/20	Con T6371F	6–4¼x4⅛	371	...	290	140–3000	7–2⅞x13½	Y	Cla 290VO▵	10	TSBD1555dph	SF	R	8.33 11.47	Tim FD900	LT61HV	752	1132	a	TX	84‡	10¼x3‡x⅄	T
23	.....645M	.....	167	215	38000	12325	10.00/22	10.00/22	Con T6427F	6–4⅄x4⅞	427	...	347	155–2600	7–2⅞x13½	Y	Cla 290VO	5	°T-SD3010P	BR	R	** –9.16	Tim FD900	Ws6IA	1073	1550	a	TD	84½	10¼x3‡x⅄	T
	Freightliner																														
24	(c.o.e.).....A64	.....	176	....	54000	▲14000	10.00/22	.....	Cum NHB	6–5½x6	743	13‡	575	200–2100	7–4½x16½	Y	Fu 4B86‡	12	Own	WF	H	6.66–8.20	Tim 27061	O4RIA	.966	1450	a	TD	136	10¾x3‡x¼	D
25	F.W.D.....H6x6G	.....	Opt	Opt	.....	▲12150	9.00/20D	10.00/20	Wau MZA	6–4¼x4¾	404	5.6	291	129–2800	7–2⅝x12½	Y	Own H	10	Own H	SF	H	** –7.45	Own H	L6IHV	647	1281	a	T6	Opt	9x3x¼	C
26	.....HRC6X6G	.....	Opt	Opt	.....	▲12620	9.00/20D	10.00/20	Wau 140GKB	6–4½x5½	525	6.4	425	172–2600	7–3¼x13‡‡	Y	Own H	10	Own H	SF	H	** –7.4	Own H	L6IHA	647	1281	a	T6	Opt	9x3x¼	C
27	.....MU6X6G	.....	Opt	Opt	.....	▲16000	11.00/20D	12.00/20	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own U	10	Own U	SF	H	** –4.9	Own U	Ww6IA	726	1463	a	T6	Opt	10⅄x3x‡‡	C
28	.....M6x6G	.....	Opt	Opt	.....	▲21000	11.00/24D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own M	10	Wis SD462	2F	L	** –6.06	Wis F409	WW6IA	1080	1680	a	T6	Opt	10⅄x3x‡‡	P
29	(D)....M6X6D	.....	Opt	Opt	.....	▲21600	11.00/24D	12.00/24	Bu DC844	6–5¾x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Wis SD462	2F	L	** –5.6	Wis F409	WW6IA	1080	1680	a	T6	Opt	10⅄x3x‡‡	P
30	Kenworth (D) .522	.....	191	255	42000	13900	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	T U200Pa††	H2F	H	5.91–9.76	Tim FE900N	Ws4IA	880	1368	a	TD	100	9½x3¼x⅄	C
31	.....(D)523.4R	.....	191	255	42000	14600	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	T SW3012FA	WF	L	4.72–6.16	Tim FE900N	Ws4rIA	868	1400	a	TD	100	9½x3¼x⅄	C
32	.....(D)524 4R	.....	195	255	42000	15500	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	Tim SW456P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3¼x⅄	C
33	.....(D)548 4R	.....	191	....	60000	20200	11.00/22	12.00/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	100	9½x3¼x⅄	abC
34	.....(D)552 4R	.....	202	....	50000	21000	13.00/24	13.00/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	111	9½x3¼x⅄	dbC
35	(D).....584	.....	191	....	95000	24200	12.00/24	14.00/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	Tim SD472P	B2F	L	8.07–11.5	Shu 12	Ws4rIA	1312	1956	a	TD	100	9½x3¼x⅄	dbC
36	(D).....825	.....	195	255	42000	14400	10.00/20	11.00/22	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16⅄	Y	BL 8241	4	T G8W458P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3¼x⅄	C
37	829	.....	178	255	42000	13600	10.00/20	11.00/22	Wau 140GZ	6–4½x5½	554	6.4	450	188–2600	7–3x13‡‡	Y	Fu 5C650	5	T SD3010PA	B2F	L	8.27–10.2	Tim FE900N	Ws4rIA	868	1400	a	TD	87	9½x3¼x⅄	C
38	(D).....888	.....	194	....	110000	29000	14.00/24	.....	Cum NHB6	6–5½x6	743	15.	535	200–2100	7–4½x16⅄	Y	BL 8241	4	Tim CDB79	CD	..	** 14.71	Shu 12	Ws6IA	....	2447	a	TD	103	10¾x3½x‡‡	L
	Marmon-Herr.																														
39	(C).....R5-6	.....	156	....	22500	▲6850	7.50/20D	7.50/20	Ford	8–3⅄x3¼	239	6.4	180	100–3800	3–2⅘x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	82⅄	7½x3x¼	C
40	(C).....R6-6	.....	180	....	22500	▲7100	7.50/20D	7.50/20	Ford	8–3⅄x3¼	239	6.4	180	100–3800	3–2½x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	106¼	7½x3x¼	C
41	.....MH440-6	.....	182	....	34000	▲10600	9.00/20	10.00/20	Her WXLC3	6–4¼x4¾	404	5.4	239	118–2800	7–2⅝x13¼	Y	Fu	5	Own	2B	H	** –8.43	Own	Ws..A	876	....	C	F	96	9‡‡x3x¼	T
42	.....MH-555-6	.....	182	....	42000	▲14900	11.00/20	11.00/20	Her RXC	6–4⅝x5¼	529	6.	390	131–2200	7–3x13¼	Y	Fu	5	Own	2B	H	** –8.15	Own	Ws..A	1092	1608	C	F	93	10⅄x3x⅄	T
43	(C) ...R5-COE6	.....	156	180	22500	▲7350	7.50/20D	7.50/20	Ford	8–3⅄x3¼	239	6.4	180	100–3800	3–2¼x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F...H	303	563	A	F	106.1	7.05x2.8x¼	T
44	(C).....Q-5-6	.....	160	....	35000	▲9550	9.00/20	10.00/20	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	85	9x3x¼	T
45	(C).....Q-6-6	.....	184	....	35000	▲9700	9.00/20	10.00/20	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	109	9x3x¼	T
46	(C).....Q-5L-6	.....	172	....	35000	▲9650	9.00/20	10.00/20	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	97	9x3x¼	T
47	(C).....Q-6L-6	.....	203	....	35000	▲9825	9.00/20	10.00/20	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	128	9x3x¼	T
	Oshkosh																														
48	.....W703-6X6	.....	Opt	Opt	47000	16950	11.00/20D	12.00/20	Her RXLD	6–4¾x5¼	558	...	430	150–2200	7–3½x13¼	Y	Fu 5A650	12	Tim SD454W	2F	H	** –6.31	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	10½–3½–⅜	B
49	(D)...W1500CD	.....	Opt	Opt	47000	19300	11.00/20	12.00/20	Cum HB600	6–4⅞x6	672	...	500	150–1800	7–4½x16	Y	Fu 4A86	8	Tim SD454W	2F	H	** –6.31	Own Tim	LT6IA	1080	1625	G	Opt	Opt	10½–3½–.3	B
50	(D)...W1600BD	.....	Opt	Opt	60000	22770	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4B186	12	Tim SD462	2F	H	** –6.14	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
51	(D)..°°W1600BDH	.....	Opt	Opt	60000	24300□	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4B186	12	Tim SD462	2F	H	** –9.82	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
52	(D)..°°W1602BDH	.....	Opt	Opt	95000	29300	14.00/24D	14.00/24	Bu 6DC844	6–5¼x6½	844	...	600	180–1800	7–3¾x17	Y	Fu 4B186	12	Tim SD472	2F	H	** –13.9	Own-Tim	LT6IA	....	2217	G	Opt	Opt	12¾–3½–⅜	B
53	.....W1600BG	.....	Opt	Opt	60000	22770	11.00/24D	12.00/24	Bu MO893	6–5⅝x6	893	...	625	200–1800	7–3¾x17	Y	Fu 4B186	12	Tim SD462	2F	H	** –9.82	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
54	(D)...W1600CD	.....	Opt	Opt	60000	23400□	11.00/24D	12.00/24	Cum HB600	6–4⅞x6	672	...	500	150–1800	7–4½x16	Y	Fu 4B186	12	Tim SD462	2F	H	** –6.14	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
55	(D)..W1600CDS	.....	Opt	Opt	60000	23700□	11.00/24D	12.00/24	Cum HBS600	6–4⅞x6	672	...	635	200–1800	7–4½x16	Y	Fu 4B186	12	Tim SD462	2F	H	** –9.82	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
56	(D)..°°W1600CDH	.....	Opt	Opt	60000	24000□	11.00/24D	12.00/24	Cum HB600	6–4⅞x6	672	...	500	150–1800	7–4½x16	Y	Fu 4B186	12	Tim SD462	2F	H	** –9.82	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B
57	(D)°°W1600CDSH	.....	Opt	Opt	60000	24300□	11.00/24D	12.00/24	Cum HBS600	6–4⅞x6	672	...	635	200–1800	7–4½x16	Y	Fu 4B186	12	Tim SD462	2F	H	** –6.14	Own-Tim	LT6IA	1080	1625	G	Opt	Opt	12¾–3½–⅜	B

▲ Includes Cab.
‡‡ Overdrive optional.

* Complete vehicle with pick-up type body.
†† Timken T13126 PA Trailing Axle.
‡ Auxiliary transmission Spicer 703F with 3 forward speeds.

‡ Three speed transmission—2 speed transfer case.
▵ Torque divider, Timken T70–2 speed.
°° Hydraulic Coupling.

□ Chassis weights on duals Front, Center and Rear.
‡—Fuller 3B92 auxiliary transmission.
∘ Auxiliary transmission Spicer 6231B at extra cost gives 15 forward speeds.

(Turn to Page 98, Please)

*Peoria Cartage Co. reports...

78,982 miles of wear on COOPER ALL-DUTY TRUCK TIRES....

with many more miles expected

If your present tires aren't delivering satisfactory service, if tire costs are out of line — then profit from the experience of Peoria Cartage and change to cooler-running Coopers.

Here are the facts: A set of 10:00-20 Cooper All-Dutys was placed on the drive wheels of a tractor unit used on the toughest haul this company makes. 78,982 original miles had been delivered at the time J. J. Buck reported results — and the tires were still running, still delivering lower-cost service.

More likely than not . . . Cooper truck-bus tires can reduce operating costs for you — whether the best mileage obtained from your present tires is higher or lower than that recorded by Peoria Cartage. Your Cooper dealer has some very interesting reasons why —and they're yours to evaluate, no obligation of course.

Distributed Stress Constructed

. . . an exclusive Cooper truck tire feature that protects against localized flexing and high friction heat

Coopers run cooler . . . run longer

*Report by J. J. Buck, Gen. Mgr., Peoria Cartage Co., Peoria, Illinois. Copies available upon request.

Cooper TIRE & RUBBER CO.

Tires • Tubes
Batteries • Accessories
Repair Materials

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(Continued from Page 96)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Peterbilt																														
1	(D).....350		193	Opt	42000		10.00/20D	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Spi 8041	12	Tim SW3012W	WF	R	6.00– 8.5	Tim FE900DPA	Ws6IA	1125	1569	...	TD	99½	10¾x3½x⅜	CT
2	(D).....360		198	Opt	54000		10.00/20D	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Spi 8041	12	Tim SW456W	WF	R	6.00–10.2	Tim FE900DPA	Ws6IA	1005	1517	...	TD	104⅞	10¾x3½x⅜	CT
3	(D).....370		198	Opt	58000		10.00/20D	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Spi 8041	12	Tim SD462W	2F	R	** –8.07	T 27463	Ws6IA	1084	1626	...	TD	104⅞	10¾x3½x⅜	CT
4	(D).....380		194	Opt	58000		10.00/20D	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Spi 8041	12	Tim SD472W	2F	R	** –8.07	T 27463	Ws6IA	1084	1626	...	TD	98½	10¾x3½x⅜	CT
5	(D).....390		197	Opt	79000		12.00/24	14.00/24	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Spi 8041	12	Tim SD472W	2F	R	** –8.07	T 27463	Ws6IA	1622	2215	...	TD	103½	10⅝x3½x⅜	CT
	Reo																														
6	.....E-216		150	203	28000	9615▲	8.25/20	9.00/20	Own 292	6-3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla 205V	5	Tim SBD1055	SF	T	5.28–7.4	Tim 32500	LT6IVH	500	842	var	TX	85¾	9¼x3 ⅞x ⅜	TfP
7	.....E-226		150	203	34000	10250▲	9.00/20	10.00/20	Own 331	6-4⅛x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim SBD1555	SF	T	5.57–7.8	Tim 32500	LT6IVH	560	944	var	TX	85¾	9¼x3 ⅞x ⅜	TfB
8	.....E-236		169	200	42000	12980▲	10.00/20	11.00/20	Con T6427	6-4⅛x4½	4275	9	338	145–2600	7-2½x13.6	Y	Cla 270V	5	Tim SD3010	SFd	T	7.5 –8.27	Tim 36000	TWs6IA	1082	1570	var	TD	108½	10¼x3½x⅜	Tf
9	306		186	248	45000	15520▲	10.00/20	11.00/20	Con R6513	6-4⅛x5⅜	5135	7	392	167–2600	7-3¼x14.7	Y	Spi 6252A	5	Tim SD3010	SFd	T	7.5 –8.27	Tim 36000	TWs6IA	1082	1570	var	TD	108½	10¼x3½x⅜	TfB
10	316		186	248	55000	16480▲	10.00/20	11.00/22	Con R6602	6-4⅛x5⅜	6025	7.5	456	194–2600	7-3¼x14.7	Y	Spi 6253	5	Tim SD454	SFd	T	7.33–10.27	Tim 36000	TWs6IA	1230	1778	var	TD	108½	10¼x3½x⅜	TfB
	Sterling																														
11	.....HBS130		164	183	32000	11000	8.25/20	10.00/20	Wau 6MZA	6-4¼x4¼	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	5	T-SBD1555DPH	SF	L	6.80–13.14	T-35011H	T6IHV	664	1134	A	TX	83	9x3 ¼x ¼	A
12	.....HDS140		164	183	36000	11800	9.00/20	10.00/20	Wau 6MZA	6-4¼x4¼	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	5	T-SD3010PA	2F	L	6.84–10.22	T-35011TW	Ws6IA	1074	1554	A	TX	83	9x3 ¼x ¼	A
13	.....HWS160		164	183	42000	12800	10.00/20	11.00/22●	Wau 6SRKR	6-4⅝x5½	517	5.5	368	125–2250	7-3x13⅞	Y	Fu 5A62	5	T-SW3010PA	WF	L	5.67–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9 ¼x3 ⅝x ⅝	A
14	.....HWS160		182	193	42000	12800	10.00/20	11.00/22	Wau 145GK	6-5¼x6	779	6.2	585	186–2100	7-3½x17¾	Y	Fu 4B86	4	T-SW456P	WF	L	4.71–6.17	T-36000TW	Ws6IA	1082	1574	A	TX	92	9x3 ¼x ¼	A
15	.....HWS235		182	193	52000	15700	11.00/20	11.00/24	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86	4	T-SW3012PA	WF	L	5.66–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9 ¼x3 ⅝x ⅝	A
16	(D)...HWS160H		182	193	42000	14250	10.00/20	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86	4	T-SW456P	WF	L	4.71–6.17	T-36000TW	Ws6IA	1082	1574	A	TX	92	9x3 ¼x ¼	A
17	(D)...HWS235H		182	193	52000	16000	11.00/20	11.00/24	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86	4	T-SW3012PA	WF	L	5.66–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9 ¼x3 ⅝x ⅝	A
18	.....HCS195		170	189	48000	15300	10.00/20	11.00/22	Wau 140GK	6-4½x5½	525	6.0	426	142–2200	7-3¼x13¾	Y	Fu 5A62	5	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1060	1912	A	JX	92	9 ¼x3 ⅝x ⅝	AL
19	.....HCS265		182	193	60000	17750	11.00/20	12.00/24	Wau 145GK	6-5¼x6	779	6.2	585	186–2100	7-3½x17¾	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	92	9 ¼x3 ⅝x ⅝	AL
20	.....HCS297		182	193	70000	20750	12.00/24‡	13.00/24△	Wau 145GK	6-5¼x6	779	6.2	585	186–2100	7-3½x17¾	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	91	12x3 ¼x ⅜	AL
21	.....HCS330		174	187	80000	23150	12.00/24	14.00/24△	Wau 145GK	6-5¼x6	779	6.2	585	186–2100	7-3½x17¾	Y	Fu4B86-3A92	12	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1082	1802	A	TX	92	9 ¼x3 ⅝x ⅝	A
22	(D)...HCS195H		182	193	48000	16000	10.00/20	11.00/22	Cum HB600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1160	1912	A	JX	92	9 ¼x3 ⅝x ⅝	A
23	(D)...HCS265H		182	193	60000	18100	11.00/20	12.00/24	Cum HBD600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	91	12x3 ¼x ⅜	AL
24	(D)...HCS297H		182	193	70000	21050	12.00/24‡	13.00/24△	Cum HBD600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	91	12x3 ¼x ⅜	AL
25	(D)...HCS330H		174	187	80000	23450	12.00/24	14.00/24△	Cum HBD600	6-4⅞x6	672	17.500	150–1800	7-4½x16½	Y	Fu 4B86♦															
	Truckstell																														
26	(C)...F2X28.2F		156	237	28000	6468▲	7.50/20♣	8.25/20-10	Ford	8–3 ⅛ x3¾	239	6.8	180	100–38^0	3–2.49x4.9	N	Ford	4	Ford■	SF	H	5.83–8.11	Ford	F6IHV	502	835	°	TX	82½	8x2.8x.46	TL▼
27	(C)F2X29-0(eoe)2F		134	224	28500	7083▲	7.50/20♣	8.25/20-10	Ford	8–3 ⅛ x3⅜	239	6.8	180	100–3800	3–2.49x4.9	N	Ford	4	Ford■	SF	H	5.83–8.11	Ford	F6IHV	502	835	°	TX	82½	8x2.8x.46	TL▼
28	(C) F2X28-7.2F		156	250	28000	7897▲	7.50/20♣	8.25/20-10	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford	HyF	H	6.8	Ford	F6IHV	560	935	°	TX	82½	9⅛x3x½	TL▼
29	(C) F2X34-7.2F		156	250	34000	8100▲	8.25/20†	9.00/20-10	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford■	SF	H	6.5 –8.87	Ford	F6IHV	695	1081	°	TX	82½	9⅛x3x½	TL▼
30	(C) F2X34-8.2F		156	250	34000	8704▲	9.00/20	9.00/20-10	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford■	SF	H	6.5 –8.87	Ford	F6IHV	835	1232	°	TX	82½	9⅛x3x½	TL▼
31	(C)...F2X40.2F		156	250	40000	9309▲	9.00/20†‡	10.0/20-10	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–x.87x5.0	Y	Ford	4	Chev.▽	HyF	H	6 17	Chev.	C6IHV	530	808	°	2I	82¼	9⅛x3x½	C▼
32	(C)...C2X28.2F		157	247	28000	6629▲	7.50/20D	9.00/20-10	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4 Std.Chev	Y	Chev.	4	Chev.▽	HyF	H	6.17	Chev.	C6IHV	530	808	°	2I	82¼	9⅛x3x½	C▼
33	(C)C2X29-0(eoe)2F		130	224	29000	7204▲	7.50/20D	9.00/20-10	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4 Std.Chev	Y	Chev.	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	71	8x3x.46	TL▼
34	(C) F4X26....4R		144	209	26000	7300▲	7.50/20	8.25/20*	Ford	8–3 ⅞ x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford ⊟⊟	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	64	8x3x.46	TL▼
35	(C) F4X27 (eoe)4R		126	185	27000	7665▲	7.50/20	8.25/20*	Ford	8–3 ⅞ x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford	8	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	71	8x3x.46	TL▼
36	.....F4X29		144	209	29000	7850▲	7.50/20	8.25/20-10	Ford	8–3 ⅞ x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford♦♦	12	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	82	9⅛x3x½	TL▼
37	.....F4X30		126	185	30000	8200▲	7.50/20	8.25/20-10	Ford	8–3 ⅞ x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford♦♦	12	Ford	HyF	R	** –6.8	Ford	F6IHV	498	836	Co	TX	82	9⅛x3x½	TL▼
38	(C) F4X34....4R		156	228	34000	10000▲	8.25/20	9.00/20*	Ford	8–3½x4⅜	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford ♦♦	15	Ford	HyF	R	** –7.16	Ford	F6IHV	745	1169	Co	2I	82	9⅛x3x½	C▼
39	(C) F4X38....4R		156	228	38000	10650▲	9.00/20	10.00/20*	Ford	8–3 ⅞ x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford ⊟⊟	15	Ford	HyF	R	** –7.16	Ford	F6IHV	825	1231	C	TX	82	9⅛x3x½	C▼
40	(C) C4X28....4R		151	217	28000	7500▲	7.50/20	8.25/20*	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4–St. Chev.	Y	Chev. ⊟	8	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	68	9⅛x3x½	C▼
41	(C) C4X29 (eoe)4R		125	192	29000	7865▲	7.50/20	8.25/20*	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4–St. Chev.	Y	Chev.♦♦	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	68	9⅛x3x½	C▼
42	.....C4X29		151	217	29000	8040▲	7.50/20	8.25/20-10	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4–St. Chev.	Y	Chev.♦♦	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	69	9⅛x3x½	C▼
43	.....C4X30		125	192	30000	8400▲	7.50/20	8.25/20-10	Chev.	6–3 ⅞ x3 ⅛	235	6.6	192	93–3100	4–St. Chev.	Y	Chev.♦♦															
	Ward La Fr. DIT‡																														
44	.....D2KT‡▲▲		180	220	39500	.....	10.00/20	11.00/20	Con T6427	6-4 ⅛ x4 ⅞	427	...	340	152–2600	.....		Fu 5A43♦♦	15	Tim SD3010P	2F	L	** –8.27	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
45	.....D2ZT‡▲▲		180	220	39500	.....	10.00/20	11.00/20	Wau 140GK	6-4½x5½	525	...	425	168–2400	.....		Fu 5C65♦♦	15	Tim SD3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
46	.....D3T‡▲▲		180	220	39500	.....	10.00/20	11.00/20	Wau 140GZ	6-4⅝x5½	554	...	458	184–2400	.....		Fu 5C65♦♦	15	Tim SD3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
47	.....D3T‡▲▲		180	220	39500	.....	10.00/20	11.00/20	Con R6572	6-4¾x5⅜	572	...	440	198–2600	.....		Fu 5C65♦♦	15	Tim SD3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
48	.....D3ST‡▲▲		180	220	39500	.....	10.00/20	11.00/20	Con R6602	6-4⅝x5⅜	602	...	463	206–2600	.....		Fu 5C72♦♦	15	Tim SD3010P	2F	L	** –6.84	Tim FE700	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
49	(D).....D5T‡▲▲		180	220	42000	.....	11.00/20	11.00/20	Cum HB600	6-4⅞x6	672	...	500	150–1800	.....		Fu 5C72♦♦	15	Tim SD3010P	2F	L	** –6.84	Tim FE700	T4IA	.....	.....	D	.....	.....	10x3 ½x ⅞	C
50	(D).....D5RT‡▲▲		180	220	42000	.....	11.00/20	11.00/20	Cum HRB600	6-5½x6	743	...	540	165–1800	.....		Fu 5C72♦♦	15	T SW3012PA	WF	L	** –6.17	Tim FE700	T4I▼	.....	.....	D	.....	.....	10x3 ½x ⅞	C
51	(D).....D5NT‡▲▲		180	220	42000	.....	11.00/20	11.00/20	Cum NHB600	6-5½x6	743	...	540	200–2100	.....																	

▲ Includes Cab.
♣ Front only; Rear 8.25/20.
‡ Rear only; Front 11.00/24.
†—Available with optional rear axles.
▲▲—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs. and optional front and rear axles.

♦ Auxiliary transmission, Spicer 8031.
■ Two speed axle with vacuum shift.
△ Rear only; Front 12.00/24.
♦♦—Auxiliary transmissions Fuller 3A65, 3B65, 3A92 and 3B92.

† Front only; Rear 9.00/20.
†† Front only; Rear 10.00/20.
⊟⊟ With Baumis auxiliary transmission.

▽ Two speed axle available—6.13–8.10.
▼ Including slip-over reinforcing frame channels.
♦♦ With Baumis power divider.
●—When 11.00/22 tires are required it is necessary to furnish 52 inch axle spacing.

° Composite Cast Alloy Iron.
§ Cast Alloy Iron.
* Single front dual rear.

Let's Put the Brakes on Phelps' Fantasy

(An Editorial Comment)

CCJ readers will recall that back in April, Mr. A. H. "Ship-everything-by-truck" Phelps, vice-president of Westinghouse Electric Corp. made a vicious and unwarranted attack on the trucking industry (CCJ, April, page 256, and May, page 31). Ever since that time our sense of fair play has been bothered by the increasing number of truck operators who have been so concerned by Mr. Phelps' stand that they have threatened to boycott all products bearing the "Westinghouse" name. We have been busy explaining that Mr. Phelps' Westinghouse Electric Corp., for instance, has nothing to do with the Bendix-Westinghouse Automotive Air Brake Co.

Mr. Phelps' attack was, of course, inexcusable. His refusal to answer all questions from the industry (notably the telegrams from John Lawrence of ATA) is even more inexcusable. Apparently he is playing the old American game of hoping all will be forgotten, but if we are any judge of the trucking industry, he's about as wrong on that point as he was in his original blast.

Nonetheless, it should be made clear that Mr. Phelps neither speaks for nor has any connection, even remotely, with Bendix-Westinghouse. We wrote the latter company a few weeks ago just to make sure of that point. Sales Manager F. L. Wheaton, who is highly regarded in the trucking industry, confirmed our own research. Said he in part: "Bendix Westinghouse Automotive Air Brake Co. was organized in 1930 as a subsidiary of Bendix Aviation Corp. and Westinghouse Air Brake Co. There is no relation now, or at any time in the past, either direct or indirect, between Bendix-Westinghouse Automotive Air Brake Co. and Westinghouse Electric Co."

Mr. Wheaton went on to leave no doubt that he and his company feel every bit as strongly about Mr. Phelps' remarks as we do. But with what is undoubtedly commendable restraint, Bendix-Westinghouse has to date withheld a direct attack. We suspect that sooner or later Mr. Phelps will back down. Meanwhile readers should remember that railroad equipment is railroad equipment, truck brakes are truck brakes and, despite the similarity in names, "never the twain shall meet."—C.B.R.

"Windy corner. Girl in short skirts."

for greater safety

THE NEW *flashing*
TURN SIGNAL SETS
for cars and commercial vehicles

THE COMPLETE LINE · K-D SAFTEE PRODUCTS

Order KD C725-10M . . . K-D's new modern, streamlined Turn Signal Set . . . for passenger cars, station wagons and light commercial vehicles. At left is shown the Set . . . two KD C725 Amber Lites, one KD 714FP Flashing Switch, and two KD C725 Red Lites. *Equip for greater safety vehicles not provided with turn signals.*

mountable in any position

KD C725 Amber or *KD C725 Red Turn Signal Lites* are easily mounted in any position and fit nearly all contours. Their 2¼" amber or red lens are engineered for proper light distribution . . . and sealed with moisture-proof gasket. Brass body . . . 2¾" x 3½" . . . *chrome finish.* KD C725 is equipped with brass connector . . . rubber nipple set . . . 21 c.p. bulb . . . single contact.

switch flashes and clicks

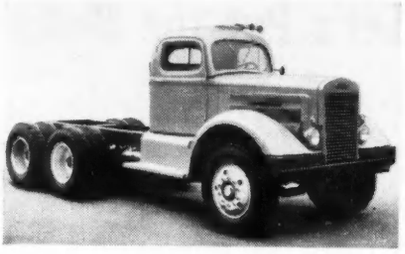
KD 714FP Flashing Switch . . . with the audible click . . . when in operation, the built-in Flasher provides continuous flashing red indicator lite and audible click. There is an added K-D Saftee feature . . . *the indicator lite is inoperative on burned-out signal lite circuit.* Three-way circuit and built-in fuse simplifies installation. Operates two 21 c.p. bulbs on each (right or left) circuit. Dash or adjustable steering column mounting. Grey enamel finish . . . chrome trim. *Finger-tip control . . . adjustable length.*

● Merchandiser Display Set KD C725-10D available . . . four Lites and one Switch . . . mounted on heavy board with easel. Easily wired for flashing demonstrations with car or dry cell battery.

K-D LAMP COMPANY
A PRODUCT OF NOMA ELECTRIC CORPORATION
1910 ELM STREET CINCINNATI 10, OHIO

White Introduces Four New Models

Two lightweight six-wheel tractors plus "3000" sleeper cab and light delivery truck



Model WC-2864-ET tandem drive tractor with foreshortened front end

FOLLOWING recent announcements of two new models in the 3000 Series, the White Motor Co. has introduced two additional new tandem drive six-wheel tractors.

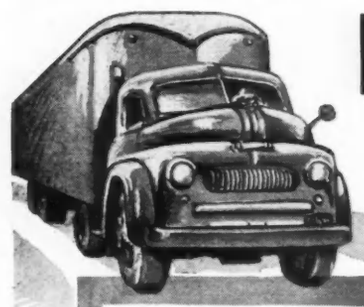
These latter models are said to combine power and weight advantages ideal for transport and heavy payload service. Model WC-2264-ET has a 154-in. wheelbase and is powered by the 135-hp Super Power 150A engine. Model WC-2864-ET has a wheelbase of 152 in. and is powered by the 184-hp White 280A engine. Curb weight of this model is 12,210 lb. Both models are equipped with aluminum disc wheels which save 37 lb per wheel or a total saving of 370 lb per tractor. These aluminum wheels are now available on all White models.

A fore-shortened front end used in the WC-2864-ET model has been redesigned to permit maximum payload under all weight conditions providing a weight distribution especially desirable in bridge formula states. The distance from front end of the bumper to the center line of the front axle is 27½ in.

New 3000 Series Models

A NEWLY developed sleeper cab in the 3000 Series provides comfortable "sleeper" facilities for highway transport service. Only 6 in. longer than the standard cab, these short wheelbase units can be used to provide additional payload advantages within highway limitations. The sleeping compartment is air conditioned by one ventilator in the roof and two adjustable ventilators in the side.

With a gross weight of 16,500 lb, a new model light delivery truck, also in the 3000 Series, capitalizes on its short wheelbase and turning circle. Its shorter over-all length and low cab floor are said to save time in every phase of delivery service. Model 3014 has the low bed frame, 8 in. lower than any comparable model of the same tire size making possible additional savings in loading and unloading time.



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Quality Ignition
PARTS

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For over a quarter of a century Niehoff Approved Quality Products have been the choice of Automotive service men who know their motors.

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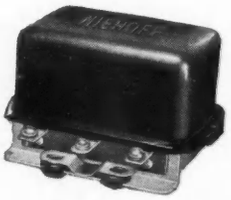
4933 Lawrence Avenue, Chicago 30, Illinois
Branches: BOSTON 34, Mass., 254 Brighton Ave.; LOS ANGELES 15, Calif., 1330 W. Olympic Blvd.; NEW YORK 19, N. Y., 250 W. 54th St.



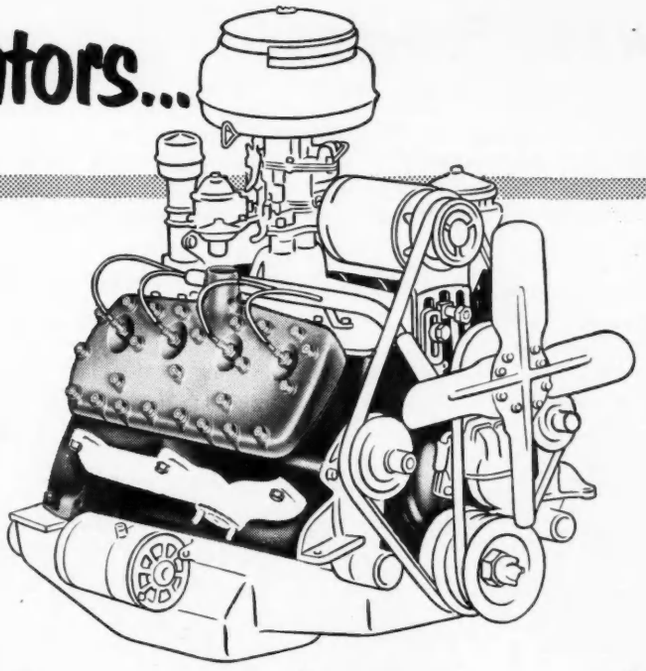
The Best in Ignition

Ford Fleet Operators...

SAVE Time

SAVE Money

WITH



Authorized Reconditioned Ford Engines

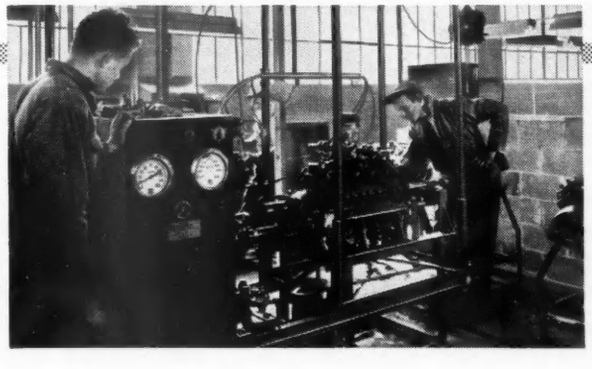
ONLY Authorized Reconditioned Ford Engines give you these "Big Four" money-saving values . . .

1. **Thoroughly reconditioned to Ford's famed hi-precision standards by an Authorized Ford Reconditioner.**
2. **Genuine Ford Parts used throughout.**
3. **Engines rigidly block-tested and inspected.**
4. **Backed by the Authorized Reconditioner's specific guarantee for 4,000 miles or 90 days, whichever occurs first.**

Why be satisfied with less, when Authorized Reconditioned Ford Engines and Engine Accessories can bring you time and money savings in installation ... operation ... maintenance ... long, dependable life.

They're right for Fords!

Quality protection—An Authorized Reconditioned Ford Engine being given a dynamometer test before shipment.



ONLY Authorized Reconditioned Ford Engines and Engine Accessories bear this emblem . . . your assurance of quality and value.

★

At Ford Dealers and Independent Garages

FORD Division of FORD MOTOR COMPANY

New Look Federals

Continued from Page 73

Cab to axle dimensions are from 60½ in. to 174½ in.

Frame rails are deeper with wider flanges. Frames are cold riveted and constructed with ample cross members. Standard side rail dimensions for all wheelbases to 196 in. are 9 x 3 x ¼ in., and for longer wheelbases 9⅛ x 3 x 5/16 in. Deep channel front bumpers are mounted directly to the frame for maximum vehicle protection.

The radiator core is cradle mounted to prevent stress and strain from road twists. All units have pressurized cooling and shrouded fans, thermostat and bypass.

Mechanical Improvements

SEVERAL refinements and improvements in the Federal-Hercules power plants have been made for greater dependability and operating economy. A choice of four high torque truck engines with rating to 126 hp are available in the new series. Engine features include full pressure lubrication, positive crankcase ventilation, copper lead main and connecting rod bearings and seven bearing tocco-hardened counterweighted and balanced crankshafts. Vibration dampers are also standard on larger engines.

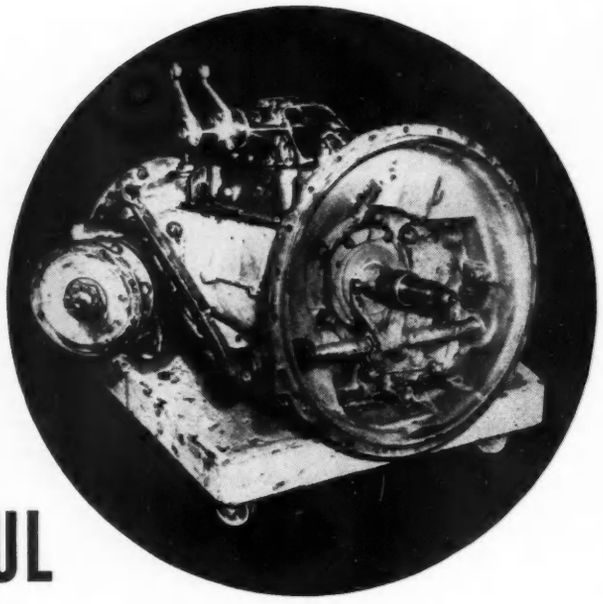
Additional mechanical improvements in the series include a wider track front axle and shorter wheelbases for shorter turning radius. Front and rear springs have been lengthened to assure a more comfortable ride. Front springs and shackles have been rubber bushed for quieter operation. Spring cushioned radius rod drive for improved axle alignment and longer spring and axle life has been made standard on most models.

Heavy-duty "full-floating" type hypoid rear axles have been provided with axle housings forged from high carbon steel. A choice of several axles of varying capacities and ratios in single speed, two speed and two speed double reduction final drive are available. A two speed high and low range selector has been located on the gear shift lever.

Propeller shafts have been designed for minimum angle drive. Pre-lubricated and shielded center bearings are mounted in rubber for smoother, quieter operation.

END

Please resume your reading on P. 74



MOTOR OVERHAUL

expedited these economical Oakite ways

It goes without saying that mechanics turn out better, more accurate repairs much faster when disassembled parts are first thoroughly degreased.

Oakite has many different materials and methods for handling this work no matter whether your present procedure calls for tank cleaning; cold tank degreasing or steam-detergent cleaning. Booklet 4401 contains a good many suggestions for saving motor overhaul costs. Why not write to New York for a free copy today?

FREE BOOKLET!
Handy 36-page guide tells how to economize on all your service shop cleaning jobs. Write!

Help when you want it right in your own shop

There is an Oakite Technical Service Representative in your city. He'll be glad to show you how serviced Oakite cleaning materials, methods and equipment can help keep your motor repair costs low. Oakite Products, Inc., 26D Thames St., New York 6, N. Y.

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SPECIALIZED INDUSTRIAL CLEANING
MATERIALS • METHODS • SERVICE

1951 Transport Fair

A world on wheels—that describes the World Transportation Fair, set for Los Angeles in 1951.

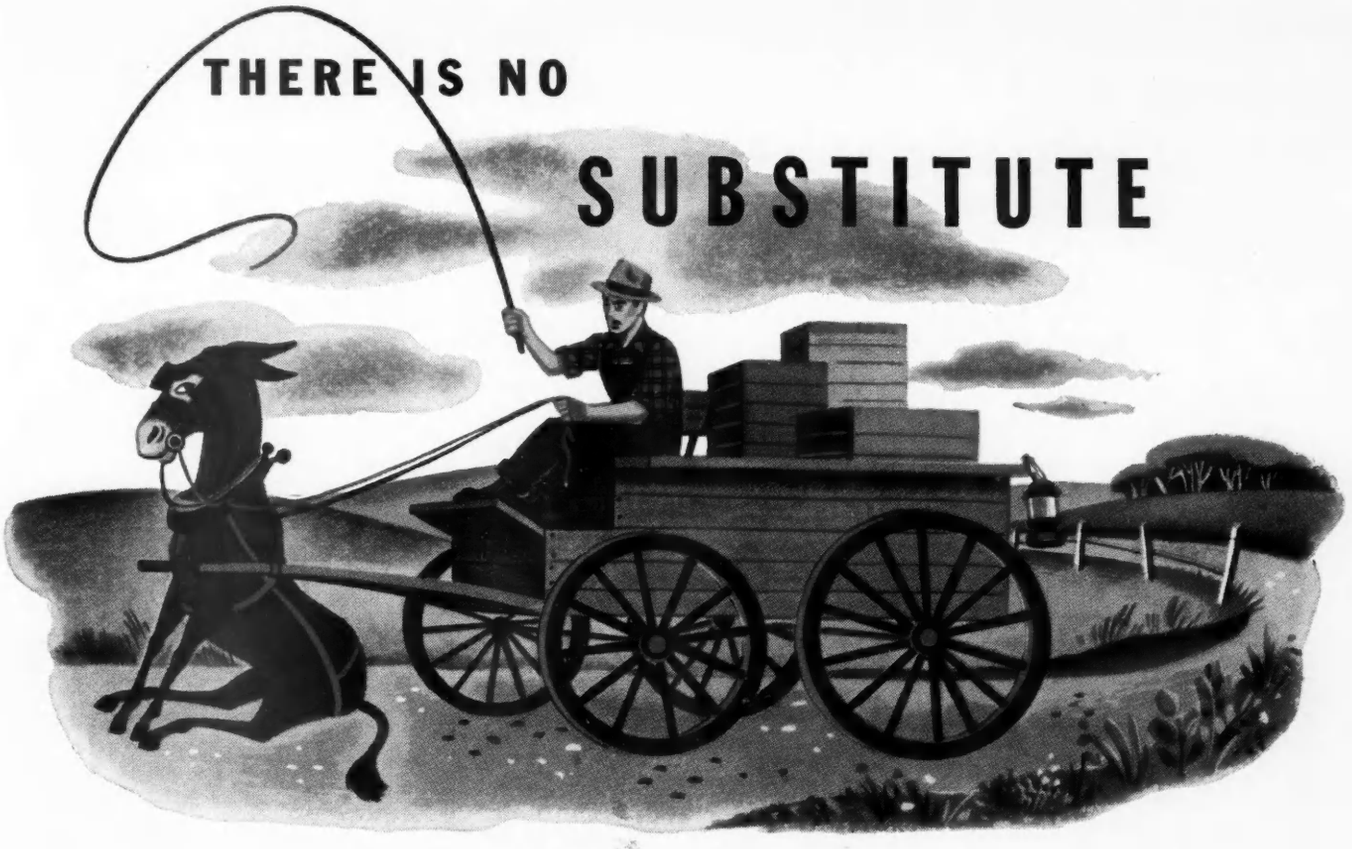
The fair dates, May 30 to Sept. 9, 1951, were announced following completion of negotiations for leasing of Santa Anita Park as the fair site. The famed racing establishment with its $10,000,000 worth of buildings and improvements, will serve as the nucleus for the world's fair.

The huge site, 14 miles from the heart of Los Angeles, will be converted into an exhibition city covering an area equivalent to 191 city blocks, where thousands of exhibits and lavish spectacles will graphically depict world developments in transportation from the earliest days, against a brilliant background of colorful Midways and specialty acts.

Every form of modern transportation, with emphasis on automobiles, trailers and trucks, will be displayed, according to Director Ira W. Curry, nationally known producer of industrial shows.

Theme of the Fair, "If It Rolls, Floats or Takes to the Air, You'll See It at the World Transportation Fair," will be carried out in a "Cavalcade of Transportation" spectacle to be presented on the world's largest outdoor stage.

THERE IS NO SUBSTITUTE



More than 40 million AC Fuel Pumps are rolling over the streets and highways today.

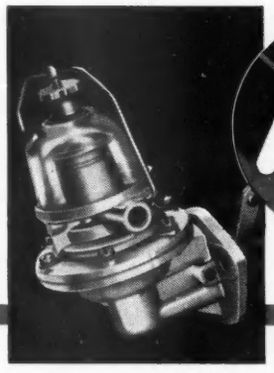
There's only one reason—*reliability.*

In AC Fuel Pumps, you get design and construction *proved* by *unique* experience. No other builder has come even close to the 80-million production which AC has totalled since 1927.

No wonder the AC rocker arms are correctly hardened. No wonder spring temper and tension are exactly right. And no wonder the diaphragms stand up under 1500 pulsations-per-mile . . . for thousands of miles.

Yet, these are only three of many evidences of that unapproached quality which means *reliability.*

With AC Fuel Pumps, plus periodic inspection, plus replacement at regular mileage intervals, you have the top combination for reliability. And there is no substitute.



AC FUEL PUMPS

KEEP YOU OUT OF TROUBLE

AC SPARK PLUG DIVISION
GENERAL MOTORS CORPORATION

AC SPARK PLUGS

AC OIL FILTERS

AC CABLE AND CASING

AC AIR CLEANERS

preferred on millions of vehicles

. . . JAMES C. ZEDER, named director of engineering and research of the Chrysler Corp., with over-all responsibility for coordinating and directing all engineering and research activity.

. . . G. HAROLD OSBORNE, general manager of sales for the Kendall Refining Co.

Capacity-Rated Condensers for Your Particular Operating Conditions!

HEAVY DUTY CONSTRUCTION
•
TRIPLE INSULATION
•
CASE & CONNECTOR IMBEDDED IN NEOPRENE
•
OIL FILLED - WATERPROOF CONSTRUCTION THROUGHOUT

For normal driving use HD-25 (.25 mf.) For slow speeds and considerable idling, use HD-30 (.30 mf.) For highway driving, use HD-20 (.20 mf.) ECHLIN Heavy Duty Condensers are capacity rated for longer contact life.

If a crater or pit forms on the negative contact (see illustration A below) use larger capacity Condenser HD-30. If a crater or pit forms on the positive contact (see illustration B below) use smaller capacity Condenser HD-20. If there is no pronounced pit, use HD-25.

(A) Under Capacity (B) Over Capacity

Write for your FREE copy of the new 1950 ECHLIN Truck and Bus Catalog

NAPA Approved

ECHLIN Ignition

A PRODUCT OF ECHLIN

CONTACTS
COILS • CONDENSERS
& OTHER AUTOMOTIVE
ELECTRICAL PARTS

ECHLIN MANUFACTURING COMPANY
234 EAST STREET • NEW HAVEN 5, CONN.

. . . A. M. TINKER, appointed district sales manager for the Philadelphia territory of American Chain Div. of American Chain & Cable Co., Inc.

. . . PAUL WAGNER, of Newark, N. J., recently named to the newly-created position of Eastern merchandising manager of Reo Motors, Inc.

. . . RALPH KELLY, president of the Chamber of Commerce of Philadelphia, elected to the board of The Autocar Co.

. . . D. F. CISNEY, named advertising manager of A. Schrader's Son, Div. of Scovill Mfg. Co., Inc.

. . . ROBERT F. SHARPE, named branch manager for the White Motor Co. in Dallas, Texas. Succeeding Sharpe at Kansas City will be B. E. SIMONS, who has been business manager for White in that city.

. . . ALBERT D. WAGEN, appointed Pacific Coast divisional director for Pittsburgh Plate Glass Co.'s paint division.

. . . C. STEWART FERGUSON, associated with General Electric Co. for 31 years, appointed technical director of the Marshall-Eclipse Div., Bendix Aviation Corp. at Troy, N. Y.

. . . LLOYD PERNOT, left, appointed manager of national accounts and JOHN THOMPSON, director of the service division, Four Wheel Drive Auto Co.

. . . CLYDE W. LESLIE, formerly International Harvester Co.'s Chicago motor truck district branch manager, appointed assistant district manager of the company's Saginaw, Mich., district office.

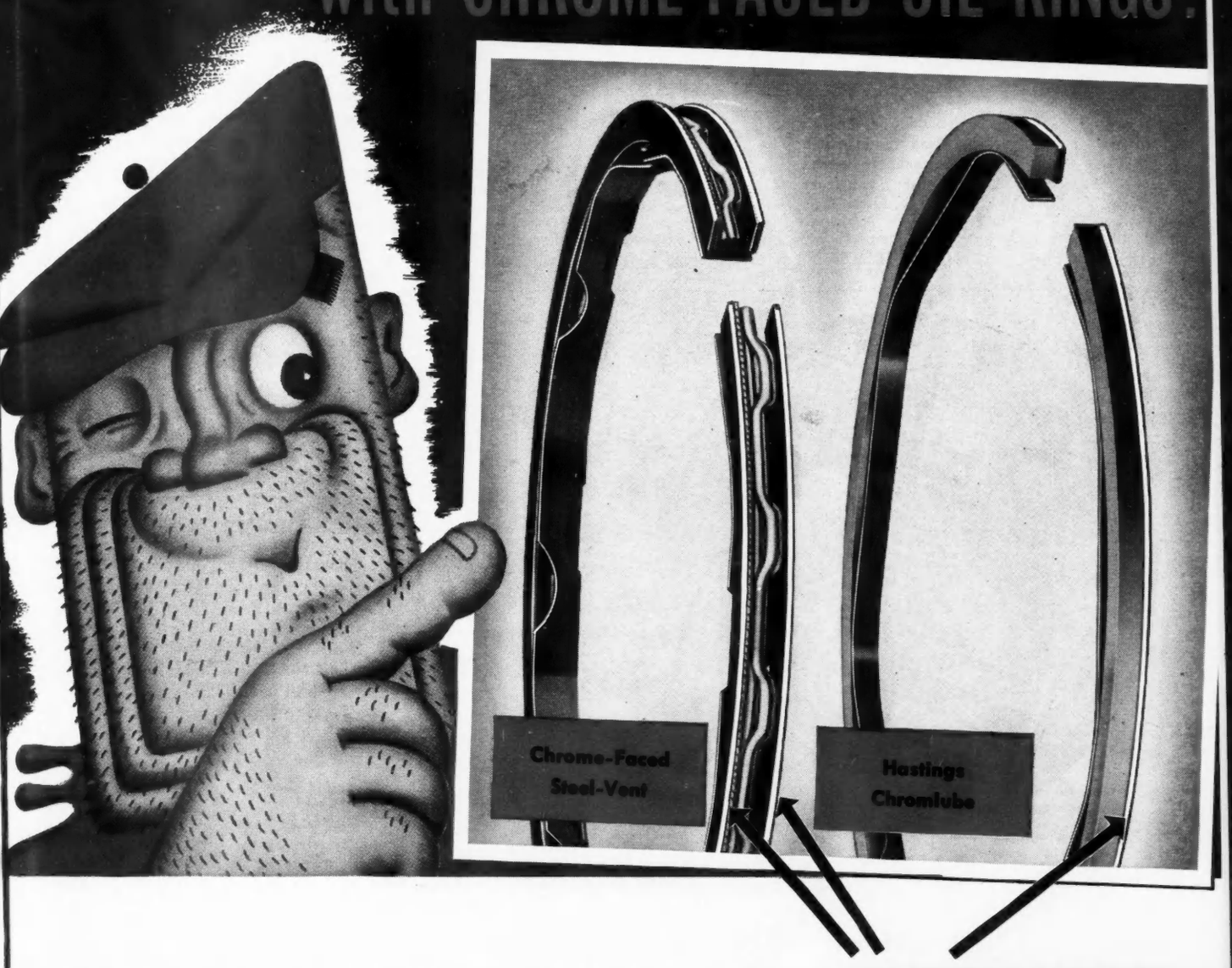
. . . A. J. EDGAR, general manager of Hunt-Spiller Mfg. Corp., Boston, elected vice president.

. . . J. P. SEIBERLING, president of Seiberling Rubber Co., elected to the combined post of president and chairman of the board of directors of the company.

(TURN TO PAGE 108, PLEASE)

HASTINGS HEAVY-DUTY SETS FOR TRUCKS AND TRACTORS

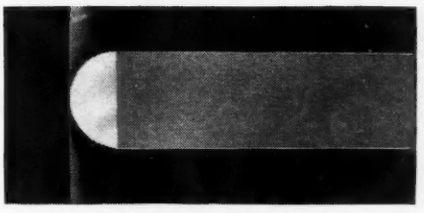
with CHROME-FACED OIL RINGS!



● More than four years of field testing have confirmed the Hastings principle of putting chrome where it is most needed—on the oil control rings.

Hastings heavy-duty Chrome Sets, with Chrome-Faced Steel-Vent and Chromlube oil rings, are out-performing all previously known ring combinations. They greatly increase expected piston ring life even under severe conditions.

Under any operating conditions, you'll get greater resistance to scuffing, less cylinder wall drag and longer life with Hastings Chrome Sets. Available now for nearly all trucks and tractors.



Hairline Contact

The chrome-faced edge of Hastings steel segments is not flat, but round. This rounded edge gives a fine, hairline contact with cylinder wall—helps the ring seat properly with greatly reduced cylinder wall drag.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Ltd., Toronto

HASTINGS STEEL-VENT PISTON RINGS

CHROME-FACED FOR HEAVY-DUTY SERVICE

Introducing . . .

Continued from Page 106

. . . JAY M. HARRIS, appointed to Grizzly Mfg. Co.'s field engineering staff as an expansion of their service to truck and bus operators.

. . . A. A. GARTWAITE, president of the Lee Rubber & Tire Corp., was re-elected a board member of the National Industrial Conference Board, Inc., for a one-year term.

. . . DONALD T. LYONS, sales manager for the Bishman Mfg. Co., Osseo, Minn.

. . . BERNHARD N. LARSON, development engineer and technical service representative for rubber chemicals, Chemical Div., United States Rubber Co.

. . . L. E. "TED" CRAIG, appointed general sales manager of the Trailmobile Co.

. . . W. M. COSTLEY, in charge of a territory comprising Minn., Wis., Northern Ill., Iowa, eastern Neb., N. and S. Dakota, and eastern Mont. and DAN STEARNS, who will handle sales in Penna., N. J., Va., W. Va., and Wash., D. C., for the Hyster Co.

. . . ARTHUR FRANK, promoted to sales manager of Central Div. of the American Coach & Body Co., with headquarters in Cleveland, Ohio. Other company promotions include ROBT. RECTOR, sales manager Southern Div., headquarters in Atlanta, Ga.; T. A. PELSUE, sales manager Western Div., headquarters in Denver, Colo.; WILLIAM HIGGS, assistant sales manager with headquarters in Cleveland, Ohio.

. . . STANLEY R. HOLLIDAY, district sales engineer for the Reyco Automotive Div. of the Reynolds Mfg. Co.

. . . F. S. NICKERSON, elected vice president of Mack-International Motor Truck Corp. and appointed as manager of the company's central division sales territory.

. . . DAVID N. MILLER, who has been made Cincinnati branch manager for the Autocar Co., Ardmore, Pa.

. . . JOHN G. PACAN, district sales manager of The Round Chain & Mfg. Co., Chicago, Ill. He will be in charge of sales activities in the Wis., Minn., Iowa, Neb., and N. and S. Dakota territories.

. . . GEORGE FREY, named vice president in charge of heavy duty Bus & Truck Hoist sales for Globe Hoist Co.

. . . HARRY C. BEST, former Pedrick piston ring territory manager of the Chicago-Milwaukee area for Wilkening Mfg. Co., recently promoted to Midwest Div. manager.

. . . JOHN E. CARROLL, appointed superintendent of the Port Authority Newark Union Motor Truck Terminal.

. . . D. M. TENCH, sales manager of Highway Trailer Co.'s Truck & Trailer Tank Div., formerly Davisbilt Products Co.

. . . K. A. VAUGHAN, advanced to the newly-created position of manager sales engineering for the Gould Storage Battery Corp., Trenton, N. J.

Built For The Job!

From Neoprene tube to cover, Thermoid Air Brake and Booster Brake Hose is engineered to give long, trouble-free service. It is constructed to meet the most exacting demands encountered under the most severe operating conditions. Look for the Thermoid seal—it is your guarantee of quality—value—and service in the hose you buy.

Thermoid RUBBER PRODUCTS BUILT FOR THE JOB QUALITY SERVICE

Thermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Clutch Facings • Thermoid Precision Process Equipment

Thermoid Company • Trenton, N. J.

Extra Payload is the Payoff

WITH BODIES OF ALCOA ALUMINUM

A Thick, husky structural members of heat-treated aluminum alloys.

B Heavy-gage aluminum panels resist denting.

C Heat-treated aluminum plate or extruded flooring for long life.

D Riveted construction makes repairs easy.

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of "Payload Proof". Its 36 interesting pages of illustrations and information will help you size up the advantages of Alcoa Aluminum for trailer construction. Write ALUMINUM COMPANY OF AMERICA, 1860F Gulf Building, Pittsburgh 19, Pa.

FLEETS EARN MORE when they operate trucks and trailers equipped with all-aluminum bodies. It's simple arithmetic! Aluminum construction eliminates up to 5,000 lbs. of dead weight from a 35-foot trailer. That means more *payload* capacity, lower operating costs!

Maintenance costs less, too—because aluminum *lasts*, resists corrosion, needs no paint. The light weight of aluminum permits body builders to use thick panels, massive sections for strength and safety. Ask your truck, trailer or body builder for facts and figures on Alcoa Aluminum construction.

ALCOA FIRST IN ALUMINUM ...THE METAL THAT *LASTS*

ALCOA ALUMINUM ®

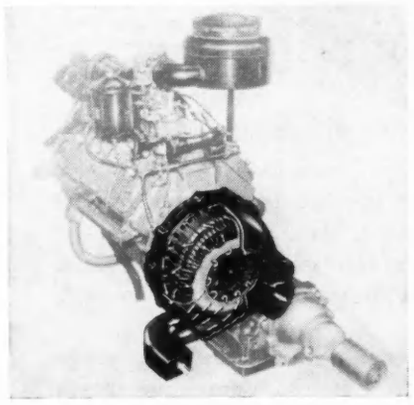
INGOT • SHEET & PLATE • SHAPES, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT-MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

FORD CONVERTER Combined with

THE NEW Mercury-Ford automatic transmission is of the torque converter type with a three-speed gear box. To permit shifting under torque it employs planetary gearing, and power from the engine is transmitted through the fluid member at all times. The planetary gear assembly, which incorporates a gear set of the double pinion type, provides three forward ratios—two geared, one direct—and one reverse ratio.

Driver control of the transmission is through a selector located at the top of the steering column. There are five positions for this selector; park, reverse, neutral, drive, and low. When the selector is in park position (extreme left) the driven shaft is positively locked against rotation by a pawl which engages teeth on the OD of the internal gear. Movement of the selector lever between neutral and drive requires only a short motion and, to avoid accidental overtravel into reverse or low, it is necessary to lift the lever toward the steering wheel as it is moved out of the neutral or drive positions. Since the selector must pass through neutral to go into reverse, accidental shifting into this position is extremely unlikely, thus making a reverse inhibitor unnecessary.

Clutch and band engagements are properly compensated to engine output

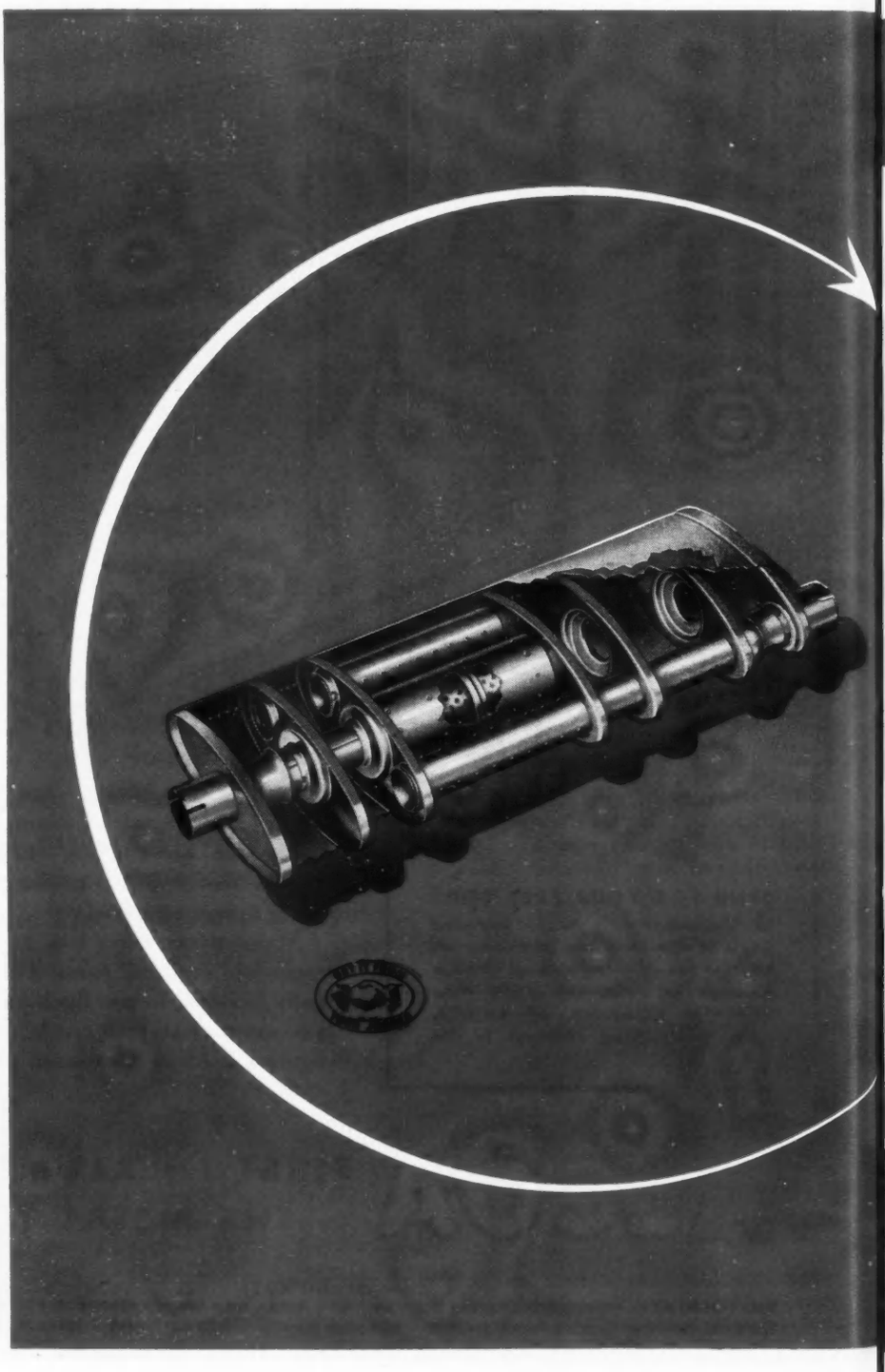


Air-cooled drive has finned pump cover to direct air through housing, eliminating need for fluid from cooling system

torque, and shifting between intermediate and high in the drive range is controlled by a linkage mechanism which connects a lever on the transmission with the engine throttle control.

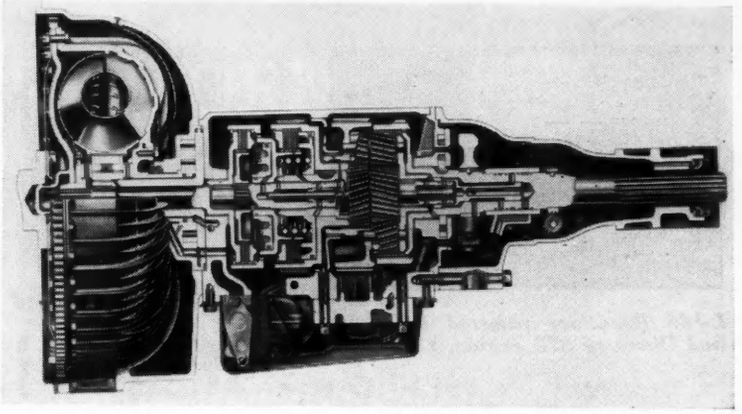
Composed of three basic elements—pump, turbine, and stator—the torque converter is driven from the engine through a flexible plate for minimum vibration transfer from engine to transmission. Fins cast on the pump cover provide added cooling surface and serve as vanes for pumping air. Air for cooling is drawn in at the lower left side, passes through the converter housing by centrifugal action, and is exhausted at the lower right side. This method of cooling the converter and transmission oil eliminates the need for plumbing and is said to be completely effective under all operating conditions.

Slots are provided in the inside of the die cast pump cover to locate 31 stamped steel blades, each of which is held in place by four tabs while a retaining ring assists in holding all of the



3-Speed Gear Set

blades. An additional pair of tabs on each blade project through slots in the torus ring and are rolled over, thus holding the torus ring in place. The pump cover is fastened to a cast iron hub by cap screws, and sealed with a synthetic ring to prevent leakage at the joint.



Torque converter is used with three-speed gear box. Planetary gearing permits shifting under torque. Power from engine is transmitted thru fluid member at all times

Except for a forged steel hub, the turbine assembly is made of steel stampings. Four tabs extending from each of the 33 blades through the outer shell are bent over to hold the blades in place. Two additional tabs on each blade hold the torus ring in place in the same manner as in the pump assembly. The outershell is fastened to the splined steel hub by rivets.

The stator is an aluminum die casting to which a formed, split steel shroud is assembled and held in place by welding at the split. Splines on the outer race of the sprag type overrunning clutch prevent rotation in the stator hub, and snap rings in conjunction with two supports hold the race in place.

Three forward and one reverse ratio are provided by the double planetary gear set which employs three pairs of long and short pinions, two sun gears, and one ring gear. All gears are through-hardened high carbon steel. Pinions are induction-hardened SAE 1085 steel to provide sufficient depth of hardness for needle bearings, with the ends soft for staking in assembly. Internal teeth extending the full length of the forged ring gear serve also as splines for attachment to the driven shaft. Cast iron is used for the low-reverse drum and pinion carrier. The two piece construction requires a minimum of machining, and the iron makes an excellent braking surface.

Alternate sintered bronze and steel plates are used in the two clutches. There are three bronze and two steel plates in the front clutch which is engaged for all forward speeds, and four pairs of bronze and steel plates in the rear clutch which is engaged in reverse and high gears.

Both brake bands are of the single-wrap type. A woven facing is cemented to the front band which is engaged in intermediate gear while the rear band,

(TURN TO PAGE 212, PLEASE)

AP *mileage-getting*
mufflers are the same as those made for original equipment on millions of cars by our subsidiary company..... Oldberg Manufacturing Company.

THE AP PARTS CORPORATION • TOLEDO 1, OHIO
Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgf-123

L-185 Roadliner powered by Super Red Diamond 372 engine, 28 net hp.

INTERNATIONAL'S New L-185 Roadliner

Specialized 20,000 lb gvw heavy duty tractor powered by 128 net bhp engine; gtw 40,000 lb

Quicker! Safer! Lighter!

THE NEW DRUM *Safety* JACK

with SWIVEL ACTION

SPOT IT—under any axle, from any angle

SWING IT—Bring dollies into position for removing wheels without lifting

LEVEL IT—Pull wheels easily without damage to bearings or oil seals

ONE MAN does the work of two with this new, improved heavy-duty jack. No wheels to lift—no crawling under trucks. Works anywhere—under any wheel—on trucks or tractor-trailers.

Use the NEW Drum *Safety* Jack for dual wheels, single wheels or as a floor jack.

Send for descriptive folder today!

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DRUM JACK CORPORATION

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We would like to know more about the DRUM *Safety* JACK.

Company _____

Address _____ *City* _____

INTERNATIONAL Harvester Co's new Model L-185 Roadliner, is a specialized heavy-duty tractor for highway transport. Available in several wheelbases the gvw of this unit is 20,000 lb; gross train weight is 40,000 lb.

The International L-185 has a specialized clutch, a specialized transmission, a specialized axle, and specialized units throughout. Its length is shorter, and chassis weight has been trimmed to give greater maneuverability and easier handling.

Fifth-wheel mounting is simplified by SAE cab-to-rear-axle dimensions and 34-in. frame width.

A feature of the new model is the all-steel Comfo-Vision cab. The individual driver's seat adjusts to any size driver. The cab ventilating system provides a regulated freshair supply. Ash tray, large glove compartment, and dual electric windshield wipers are standard equipment. The curved, one-piece Sweepsight windshield provides maximum vision. For added safety at night, all major electrical circuits are protected by automatic breakers which isolate any failure to the single circuit involved.

A new, roomy sleeper cab, attractively styled, is offered with the L-185 Roadliner for those operators planning day-and-night hauling. The extra-long sleeping compartment, finished with high-quality springs and covering material, measures 75½ in. and has a six in. inner-spring mattress.

Power Train Details

THE Super Red Diamond 372 engine powers the L-185 Roadliner. This engine provides 143.8 maximum brake horsepower at 3200 r.p.m.; 128 net brake horsepower at 2850 r.p.m. Compression ratio is 6.3 to 1.

Standard transmission is the Internationl heavy-duty 5-speed, with either overdrive or direct in fifth. Optional is the over-size 5-speed transmission, to

[TURN TO PAGE 116, PLEASE]

PREDICTABLE PERFORMANCE ... we got both with WALKER!

Actual Experiences Prove Walker Keeps Oil Clean in the Critical Period Between Oil Changes!

● There is plenty of evidence—evidence from scores of fleets across the nation that points to Walker's increasing popularity and clear-cut superiority in every phase of oil filtration.

One big user of oil filters, for example, demanded a cartridge that "shall be of a type which will not channel, by-pass nor shed its filtering medium into the oil stream." Walker alone filled the requirements . . . and the order.

Another found that on heavy-duty Diesel units, Walker Oil Filters actually doubled his previous filter life.

The reason is simple. Walker "3-Dimension" filtration is *multiple* filtration—to take out the many, different kinds of engine contamination *including crankcase condensation.*

Moisture, sludge and abrasives get no chance to build up—your oil stays clean in the critical period between oil changes! Walker "3-Dimension" filtration actually removes abrasives down to 2/10 of one micron—a 25-to-1 margin of safety over the danger size of contaminants.

Test Walker on your fleet . . . with your loads, over your roads. Find out for yourself.

KEEP OIL CLEAN *between* OIL CHANGES

WALKER OIL FILTERS

WITH PATENTED *Laminar* * CONSTRUCTION

WALKER MFG. CO. OF WISCONSIN · RACINE, WISCONSIN

International's L-185 Roadliner

Continued from Page 112

meet more severe operating demands. Overdrive or direct in fifth is available.

Hypoid gearing, heavier housing, wider wheel bearing centers, improved axle ratios, and straddle-mounted pinions are features of the rear axles. These improvements provide greater load-carrying capacity per pound of axle weight and proper axle ratios for operation under all conditions. Hypoid gear single-reduction and two-speed rear axles are available.

Cradle-action rear springs provide added riding comfort for the driver and added load protection. These springs have been lengthened to 54 in.

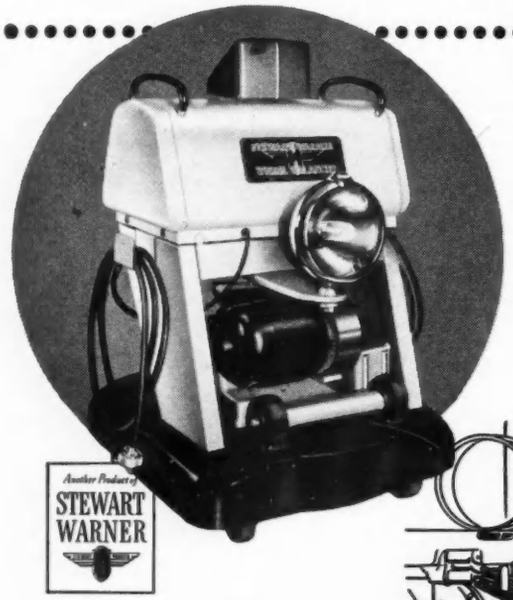
The brakes provide increased braking efficiency with decreased pedal pressure. Oversize, 2-cylinder-type hydraulic brakes with vacuum booster are standard equipment; air brakes are optional.

The shorter overall length of this specially engineered chassis enables operators to increase trailer length within state regulations. Short turning radius and improved steering make for easier maneuvering.

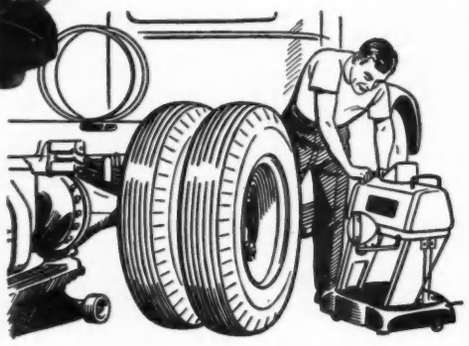
The new steel-flex frame combines great strength with flexibility. The channel-type bumper is mounted directly to the frame and serves as an additional crossmember for the frame.

END

NOW! BALANCE WHEELS Right on any truck or car!



New Stewart-Warner *Electronic* Unit Balances Wheels in True Running Position — Quickly, Easily, Accurately!



Another Product of STEWART WARNER

Now you can protect your vehicles with accurately balanced wheels this easy, thrifty way. In minutes, this *Electronic* Wheel Balancer helps you cut repair costs, slash "downtime" and increase driving safety.

No matter how large the vehicle—front or rear wheels, single or dual, on single or tandem axles are easy to balance this *Electronic* way. You eliminate vibrations and pounding on front end assemblies, tie rod ends and bushings—*without removing the wheels from the vehicle!*

Easy to operate, the Stewart-Warner *Electronic* Wheel Balancer registers vibrations as small as 2/1000 of an inch! Tells exact degree of unbalance with *less* work, in *less* time than any other method!

This complete, self-contained unit pays for itself by avoiding repair costs *in advance!* Assures greater operating safety and cuts maintenance costs on every truck or car you operate.

WRITE TODAY for complete, free details on this amazing, easy-to-use unit—created and produced *for you* by Stewart-Warner only! Address inquiries to Dept. D-60 for rapid reply.

Stewart-Warner Corporation

1826 Diversey Parkway, Chicago 14, Illinois

Highway Test Scheduled

The Highway Research Board recently announced that final plans have now been completed to inaugurate an actual test of the relative effects of different truck axle loads on concrete road paving. This joint project, which has been arranged through cooperative action of the state highway departments in some 10 or more eastern and central states along with the federal Bureau of Public Roads as an aftermath of a recent meeting of state highway officials in Columbus, Ohio, will provide the means for conducting a large-scale testing and factual study of concrete pavement under concentrated truck traffic using single axle loadings of 18,000 and 22,400 lb and corresponding tandem axle loadings of 32,000 and 44,800 lb.

A 1.1 mile section of U. S. Route 301 in southern Maryland has been set aside by the State Roads Commission of Maryland for these tests upon which trucks will operate at an average frequency of one truck per minute on a 24-hour day, 7-day per week schedule. Traffic ordinarily carried by this road will use an alternate parallel road during the test period. The road selected for the test consists of two 12-ft. lanes of mesh reinforced concrete pavement laid on a good granular subgrade. Each lane is 9-7-9 in. in cross section. It is recognized that the structural character of this road is probably better than that of the average concrete road built for similar traffic conditions. The road was paved in 1941 and has withstood normal traffic and seasonal weather changes for 9 years with very little damage.

This 1.1-mile section of road will be divided into two sections. In one section, single rear axle trucks loaded to 18,000-lb, axle load will run back and forth over one lane and trucks loaded to 22,400-lb axle load will run back and forth the same number of times in the parallel lane. The other half-mile section will be tested in the same way with trucks equipped with tandem axles loaded to 32,000 lbs in one lane and 44,800 lbs in the other. In addition to detailed observations of visible effects of the traffic on the pavement, measurements of surface elevations, stresses and deflections under wheel loads, subgrade condition, and concrete quality will be made.

Hydraulic Tailgates Save Loading Time

Continued from Page 71

Elevating tailgates can be installed on semi-trailers, but installation presents more of a problem. The hydraulic pump and oil reservoir are normally attached to the tractor, and a double line hose runs from the hydraulic pump to a valve installed at the rear of the semi. Break-away valves are cut into the lines and are mounted to a bracket located on the front end of the semi. Thus the tractor can be detached quickly and without loss of oil. Control, as in the truck-mounted assembly, is at the rear of the train.

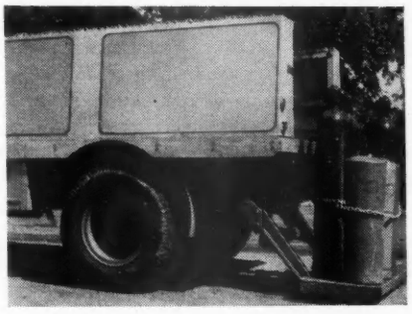
Hydraulically operated tailgates are now manufactured for ½, ¾-ton and 1-ton trucks, and for 1½-ton to the largest size trucks and semis. Lifting capacity averages around 2000 lb. Assemblies are made to fit frames which may vary in length, width or height. For most of the units on the market the distance from the bottom side of the truck frame to the ground must not be less than 22 in., nor more than 35 in. The distance from the ground to the top of the body floor should not be less than 34 in., nor more than 54 in. The distance from the center line of the rear axle to the rear end of the body should not be less than 43 in. Thus, all conventional equipment can be accommodated. Slight modification will enable the operator to use hydraulic tailgates on any truck or trailer. Most popular sizes of the platform itself are 27 x 84 in.; 27 x 90 in.; 36 x 84 in.; and 36 x 90 in.

Proper installation of the elevating tailgate is important to the success of the operation. The assembly is attached to the rear of the frame, and in cases where the frame is short, it must be extended. The inside of each frame rail must be filled with a hard wood block to keep the rail flanges from becoming misaligned. The wooden blocks should extend well on each side of the clamp or U-bolts which attach the tailgate assembly to the truck. The tailgate assembly is made to act as a cross member support for the truck frame, and installed properly, it will not fail from excessive side force. Installation should require not more than 10 to 20 man-hours. Weight of the assemblies on the market at this time varies from 640 to 850 lb.

While most of the lifts available today are hydraulically operated and powered from the vehicle engine, a unit built by Thompson Trailer Corp. is powered by a conventional starting motor. Maximum drain on the truck battery is 110 amps for 30 sec, when lifting a 2000-lb load. In general use, up to 25 operations per day are possible without use of additional generating or battery equipment. When more use is required, it is necessary to install larger generators and additional batteries. The motor is connected directly to an aircraft type high pressure hydraulic pump. Power cylinders are built into the lifting arms, are protected from the weather yet easily accessible for service. Weight of this unit is from 450 to 525 lb, depending upon size of platform. Capacity load is 2000 lb.

END

Please resume your reading on P. 72



The Thompson lift gate is hydraulically operated, but powered with an electric motor. Convenient operation, light weight, economical operation are claimed for unit.

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The retail purchaser of this new genuine Bendix Drive is entitled to a credit allowance of $1.00, which applies to the purchase price of the complete unit, in exchange for the worn Bendix Drive (WBD). All other classes of trade receive a merchandise credit allowance. No merchandise credit allowed unless this tag is returned with the worn Bendix Drive to our central distributor.
PLEASE DO NOT EXPECT TO RECEIVE YOUR CREDIT WITHOUT THIS TAG.
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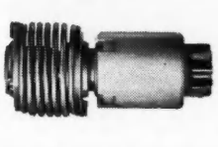
Form EM-226NF

How can you lose with a deal like this? Bendix* Starter Drives give you a *double* return—first, you make a profit on the installation of new drives. Secondly, the old drives are worth money to you when you return them, with this tag, to your Bendix Drive Central Distributor.

Be sure you always replace with the *genuine* Bendix Drive! Your customers get twice the satisfaction and, at the same time, you get two separate profits.

*REG. U.S. PAT. OFF.

INSTALL THIS DRIVE → RETURN THE OLD ONE WITH THIS TAG →



THEY'RE WORTH MONEY! TO YOU

ECLIPSE MACHINE DIVISION of Bendix AVIATION CORPORATION
ELMIRA, NEW YORK

Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y.

Campaigns Cut Bus Maintenance

Continued from Page 55

ion that the end of the piston rod, on which was attached an adjustable head and lock nut, was in alignment with the crank arm actuating the connecting control rod to the transmission.

A check valve and flexible hose connects one end of the power cylinder to a small tank. This tank was made from another salvaged power cylinder housing. The small tank which is mounted above the level of the cylinder and piston, is filled with light lubricating oil. The check valve itself has a small hole drilled through it. The valve, fully opened, permits oil from the tank to fill the volume in the lower cylinder.

When the operator begins to shift into reverse, the crank arm is forced against the end of the piston rod. Oil is forced up to the tank. The check valve seats and only allows oil to pass through the small hole in its center. This restricts the rate of flow of oil to the tank and the movement of the piston and rod. Therefore the operator can shift only as fast as the piston will allow. When shifting into forward again, a spring in the cylinder assists the piston to return to its normal position.

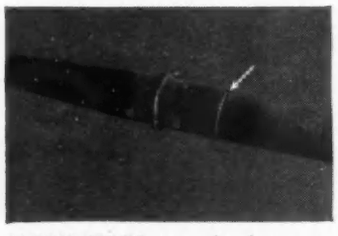
Fig. 5 shows a complete installation. The power piston and tank is shown at A and B respectively. The piston rod of the power piston can be seen in contact with the crank, operating the control rod, at C. It also can be seen easily that shifting into forward caused the control rod to move toward the left or rear of the vehicle. Shifting into reverse causes the control rod to move to the right and be impeded by the action of the piston.

We are at present working on a dash pot arrangement in which the tank is eliminated and only the power piston and cylinder used. The check valve is being made to fit on the piston itself. It will allow free flow of oil from one side of the piston to the other when the piston moves toward the rear or to its normal position. It will restrict the flow when the piston is forced forward.

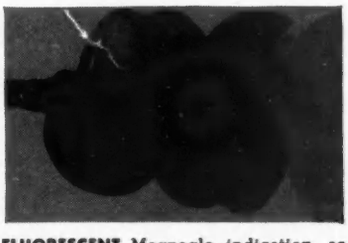
It Should Have Been Found During Overhaul BY INSPECTION with MAGNAFLUX—MAGNAGLO

Ordinarily invisible defects are located during routine preventive maintenance overhaul by simple inspection with MAGNAFLUX-MAGNAGLO. When defective parts are not returned to service,— they don't fail in service.

Failures of crankshafts, blocks, spindles and axles (like that above) do not occur on your equipment after overhaul, if you are using inspection with MAGNAFLUX-MAGNAGLO during rebuilding of engines and units.



FATIGUE CRACK—in truck axle is invisible to the naked eye, but shows clearly with accurate Magnaflux inspection to prevent a breakdown.



FLUORESCENT Magnaglo indication, as seen on crank throw during inspection. This glowing line marks a non-visible crack very near to final failure.

FOR SAFETY...ECONOMY...RELIABLE SERVICE
Write today for complete information

**Magnaflux—Magnaglo—Reg. U. S. Pat. Off. Trade Marks of Magnaflux Corporation applied to its equipment and materials for magnetic particle inspection.*

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New York • Cleveland • Detroit • Dallas • Los Angeles
Export Distributors: Curtis Wright Corp. In Canada: Williams & Wilson, Ltd.

Knock-Out Puller Removes Axle Shafts

ANOTHER campaign which we have conducted has been responsible for savings in time yet cannot be considered strictly as a preventative maintenance measure. The campaign itself consists of welding a 1-in. nut on axle shaft flanges.

In removing axle shafts employing the cone type washers, we found that the shafts invariably were difficult to remove. Prying and hammering the flange finally broke them loose. Oftentimes a misaimed hammer blow would damage the studs and this would necessitate the extraction of the damaged studs and installation of new ones. Then too, the surfaces of the hub would become nicked and distorted and caused grease leaks.

We devised and constructed a knock-out puller which consists of a long 1-in. bolt on which a heavy hammer head slides. The head itself is merely a large steel or iron cylinder with a hole running lengthwise through its center.

In operation the bolt is threaded in

(TURN TO PAGE 122, PLEASE)

★★★★★★★★★★★★★★★★★★★★★★★★★★

SLOGAN

So drive that your summons won't come before your time.

★★★★★★★★★★★★★★★★★★★★★★★★★★

3 GREAT MOHAWK TRUCK TIRES

SUPER CHIEF
TRUCK
An extra tread, heavy-duty truck tire for extremely long mileage. Vented shoulders reduce heat, insure longer wear.

BIG CHIEF
TRUCK
Ruggedly designed for grueling special service—excavating, logging and mining operations, either on or off the road.

CHIEF
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Outstanding in quality throughout the country for safety, service and economy—the tire for the tough jobs.

"You get more miles on Mohawks!

Their outstanding quality has been famous among fleet operators everywhere—for over 37 years! Yes, for every truck and bus tire requirement, you can rely on Mohawks for miles and miles of extra service!"

MOHAWK

THE MOHAWK RUBBER COMPANY · AKRON 5, OHIO
Export Department — 1819 Broadway, New York 23, N.Y.

Bus Maintenance

Continued from Page 120

the nut, welded on to the axle flange. With the flange holding nuts removed or loosened, a few blows with the hammer head against the bolt head, will loosen the shaft for easy removal. Fig. 6 shows a shaft about to be removed.

General Maintenance Program

OF COURSE, our maintenance is not confined to mechanical defect campaigns. We have a well defined maintenance program that embraces our nightly inspections, mileage inspections and unit replacements at specified mileages.

Every night each vehicle passes over an inspection pit, after being fueled, oiled and watered. Defects noted on the driver's card are corrected first. The inspector then checks a long series of items and any defect noted is corrected, if possible on the line. If it cannot be corrected on this service line, it is reported to the foreman, who spots the vehicle in the general work area or on a lift. The defect is corrected either immediately or, if too extensive, left for the day crew. Naturally, this is dependent upon the exact nature of the work required. In any case, the vehicle does not impede the progress of the service line.

As each vehicle comes off the line it is cleaned thoroughly on the inside. One man sweeps the vehicle and another washes the windows with a chamois. A two-man crew washes each vehicle on the outside.

Special attention is given to certain items on particular nights of the week. On Monday and Thursday nights, brakes are adjusted. On Tuesday and Friday nights air tanks are drained. On Wednesday night differentials and transmissions are greased.

Along the wall at the end of the long pit are stored our skid chains. This location has proved itself to be efficient. In the event of bad weather as the vehicle comes off the line, a special crew can install, inspect, remove or service the chains in this convenient spot.

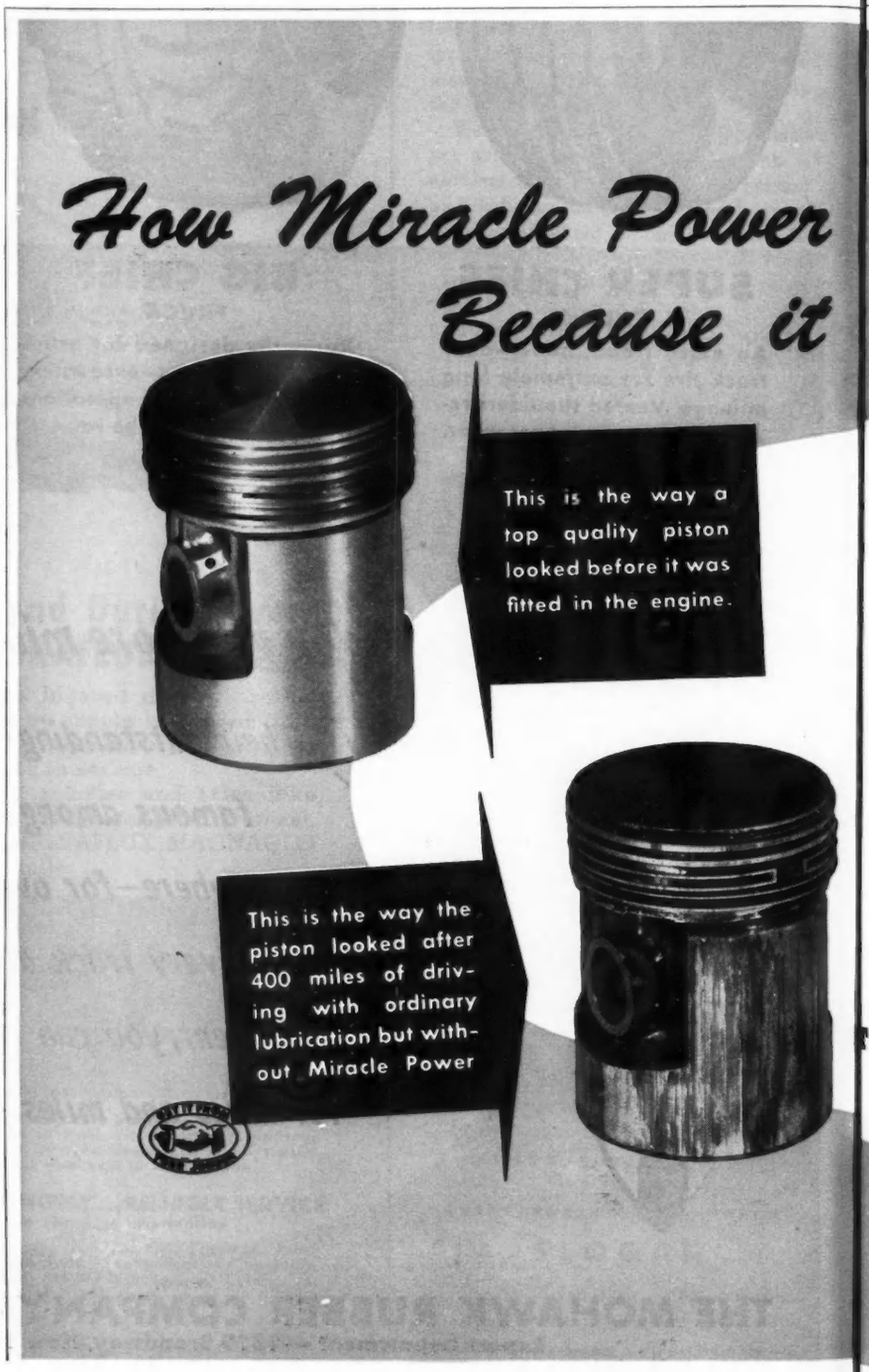
The wrap-around type of chains are used in our operation. We usually install three sets on a tire. Installation is accomplished by merely wrapping the chains around the tire and passing one end through the hole in the wheel and fastening it to the other end of the assembly. The loose ends, after the fastening, presented a problem. We solved it by connecting the chain ends with a three-way chain spreader. This spreader consists of three heavy coiled-springs connected to a center ring. Each spring is then hooked to the ends of one chain set.

Mileage Inspection Intervals

MILEAGE inspections are based on 1500- and 15,000-mi periods. At 1500 mi, more than 60 items are thoroughly checked. Fig. 7, our Forms 158-1, -2, -3, are used. This inspection is primarily for the purpose of greasing, filter and oil changing, checking and correcting all items which may cause road calls, effect safety and driver comfort.

The inspection is divided into three procedures, with a form covering each one. Three men are responsible for the entire inspection. One form is assigned to each man and he is responsible for all the items listed on his particular form.

These three men are alternated every week so that at the end of three weeks, each man has performed all the duties listed for the 1500-mi inspection. In this manner no one man is kept on the dirty jobs, while the others have it comparatively easy. It has a tendency to make better mechanics and to make


How Miracle Power
Because it
This is the way a top quality piston looked before it was fitted in the engine.
This is the way the piston looked after 400 miles of driving with ordinary lubrication but without Miracle Power

them thoroughly familiar with all the items pertaining to good maintenance.

The man in charge of this inspection guides them and obtains the help of specialists such as the glazier for broken windows or the carpenter for defective steps. He also arranges to have any time consuming job performed or completed after the bus leaves the pit.

In the Spring of each year, while the heating systems are still in operation, all water is drained at the 1500-mi inspection. A radiator cleaner is inserted and left in the system until the next 1500-mi inspection rolls around. The system is then drained and filled with water. One pint of water soluble oil is also added to the system and at every subsequent 1500-mi inspection another pint is added. With this procedure our heater cores, engine cooling systems and radiators are kept clean, efficient and clogging is prevented. In addition the oil additive acts as a lubricant for the water pump.

Fig. 8, our Form 83, lists the items inspected in our 15,000-mi inspection. However, before any vehicle is brought in for this inspection, the mileage of all of its major units is determined. If any PM change is indicated, it is noted on an additional work sheet. Before any work is undertaken, the vehicle is given a road test and any additional defects also noted on this work sheet. Thereafter, all other items listed on the form are checked and necessary work accomplished by the day inspection and service crew.

In this 15,000-mi inspection the engine is given a thorough check. In one type of bus in our fleet, this operation consumed more than the usual amount of time. Upon investigation, it was found that the removable floor piece which covered the engine was too small. It did not allow sufficient working space when removed, to enable the mechanic to work rapidly. To alleviate this condition, we campaigned a correction and increased the size of the floor opening on all buses of this one type. The only additional work necessary, besides cutting a larger hole in the floor and making up a correspondingly larger cover, was to move one seat base outboard. The savings resulting from this alteration was a 50 percent reduction in the time originally needed to remove and install spark plugs and cylinder heads.

Our unit replacement program is based upon our experience with our own vehicles and replacements are made at the 15,000-mi inspection period. The replacement work is done by the day inspection crew. Rebuilt units are supplied by the engine rebuild and unit overhaul department.

Simple Control System

INASMUCH as the success of every maintenance program is based upon adherence to the execution of the planned inspections and unit replacements, we have tried to keep our control system strict and yet simple.

The Bus Defect Card is our liaison with the bus operator. On this card he notes any defects or irregularities encountered during his operation of the vehicle. Every night this card is checked as the vehicle passes over the inspection pit and any defects corrected then or as soon as practicable. Our Form 168, Fig. 9, lists the additional work to be accomplished on each vehicle on each night of the week.

Records of daily gas and oil consumption are kept on a large wall chart which we refer to constantly. The chart is divided into vertical columns headed by the numbers of each vehicle. Heavily ruled, horizontal lines divide the chart into squares, which are num-

(TURN TO PAGE 124, PLEASE)

Protects You
Protects New Cars

★ More and more automobile dealers are using Miracle Power to protect new cars before and after delivery.

★ They have found that Miracle Power in gas and oil means fewer engine complaints and comebacks.

★ That's because Miracle Power contains colloidal synthetic graphite in complete suspension—with all of the lubricating advantages of natural graphite and none of its disadvantages.

★ Miracle Power forms a graphoid film on vital engine parts—prevents DRY STARTING—protects parts from harmful friction and provides lubrication when oil burns off due to high operating temperatures in tight, new engines.

★ Just add Miracle Power to gas and oil every thousand miles.

THE AP PARTS CORPORATION
Miracle Power Division
AP BUILDING • TOLEDO 1, OHIO
MUFFLERS • PIPES • MIRACLE POWER • dgf-123

Bus Maintenance

Continued from Page 123

bered according to days, in the left column. Each square is divided by two lightly ruled horizontal lines, dividing the square into three rectangular boxes. In the top box, the daily vehicle mileage is recorded. The average gas mileage is recorded in the center box and the number of quarts of lubricating oil is recorded in the bottom box.

From this chart we can detect and anticipate certain types of failures. A sudden increase in gas consumption, indicated by a decrease in gas mileage, may be caused by a poor carburetor setting, sticking choke valve, faulty ignition or any number of other possibilities. In any case the vehicle can be called in and thoroughly checked, and any defect corrected.

Likewise a sudden increase in oil consumption might be indicative of external leaks, broken rings, etc., which can be corrected in a very short time after their occurrence.

We also employ a few symbols on the chart which tell their own story or record a particular operation. We encircle the number of quarts of oil used to indicate an oil change. A red dot is used to indicate a change of ignition points and spark plug adjustments.

Key to System

Our vehicle mileage card is the key to the entire PM system. It is a 12 by 12 in. ruled card. Months of the year head columns across the top. Days of the month are numbered vertically down on the left side. Each day the cumulative mileage supplied by the transportation department is recorded on the cards in its respective square. At the end of the year a new card is pasted on the back which enables one card to carry mileage records for a period of two years.

The unit mileage record card is 8½ by 15 in. It contains 19 columns headed by the various major units such as air compressor, transmission, fuel pump, etc. Each vehicle has its own unit mileage card.

Whenever a major unit is replaced, the date is noted on the card. In the future, by referring to that date recorded on the vehicle mileage card and the total vehicle mileage on the same card, it is possible to ascertain the operational mileage of the major unit. Thus, it is easy to determine the mileage for each major unit and properly schedule its inspection and replacement.

Currently we are replacing transmissions and differentials at 75,000 mi, air compressors at 50,000 mi, brake valves at 75,000 mi, relay valve at 45,000 mi, fuel pumps at 30,000 mi, brake diaphragms at 35,000 mi, blowers at 100,000 mi, injectors at 15,000 mi.

Whenever units are changed a simple form is executed in duplicate. It lists the date, bus number, all new parts used and any variation in size, from standard, of any parts such as shafts, pistons, cylinders, etc. The signatures of the mechanics who overhauled and installed the unit are followed by the foreman's signature. The original record is sent to the main accounting office and the copy is kept by the maintenance department for its own records.

The simplicity of this system is borne out by the fact that one man is able to take care of our records part time.

He devotes a total of two and one-half hours each day to the records and his remaining time is spent in the supervision of the 1500-mi inspections.

END

Please resume your reading on P. 56

You can "set it and forget it". That's why the best welding and cutting operators use a two-stage R-201 Oxygen Regulator on all of their jobs. They know they can count on it for steady gas delivery at any working pressure they choose. They can't afford to use a piece of equipment that needs time-wasting attention while work is under way. Nor can you. So see your PUROX Jobber today. Let him show you how the R-201 Regulator can help you do your work better and faster. If you don't know him, address: The Linde Air Products Company, 30 East 42nd Street, New York 17, N. Y. In Canada: Dominion Oxygen Company, Limited, Toronto.

The term "Purox" is a registered trade-mark of Union Carbide and Carbon Corporation

Order from your local Jobber

"Caterpillar" Hydraulic Controls

Use VICKERS BALANCED VANE PUMPS

Caterpillar No. 46 and No. 44 Hydraulic Controls use Vickers Balanced Vane Type Pumps for their dependable source of hydraulic power. These front mounted controls have a world-wide reputation for responsiveness, reliability, low maintenance and minimum down-time.

Vickers Vane Pumps have many advantages in addition to the hydraulic balance and cartridge assembly illustrated below. Their initial high operating efficiency continues because correct running clearances are automatically maintained. The no-load starting characteristic is an important feature in cold weather. Space requirement is small in proportion to hydraulic output. Working pressure is up to 1000 psi (continuous duty). Write for Bulletin 36-12 and Bulletin 49-52, which illustrate and describe the advantages of Vickers Vane Pumps for mobile equipment.

TO HELP ASSURE:

Fast, Responsive Control

•

Long, Reliable Service

•

Minimum Maintenance and Down-Time

•

VICKERS Incorporated

DIVISION OF THE SPERRY CORP.

1418 OAKMAN BOULEVARD • DETROIT 32, MICHIGAN

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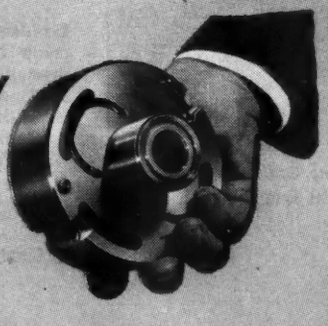
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

3984

VICKERS

Cartridge Assembly

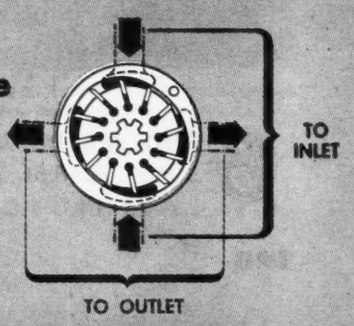
This cartridge contains all the pumping parts that move . . . none of them contact the housing. Inspection and removal of all working parts can be made without disconnecting piping or drive coupling.



VICKERS

Hydraulic Balance

With this patented construction, bearing loads are cancelled out by equal and opposing radial hydraulic thrust loads as shown in diagram. The result is longer pump life with minimum maintenance.



Coordinating Dispatching

Continued from Page 51

home terminal after the hauling agreement is completed. . . .

"It is your responsibility that your equipment meet NAVL specifications and, necessarily, all ICC requirements and regulations. . . .

"You must at all times make certain that your driver furnishes NAVL with proper certificate of physical fitness, and prepares and forwards logs in accordance with ICC regulations. . . .

"The drivers selected by you for this hauling arrangement must be men of unquestionable household goods experience to successfully carry out the high standards and requirements of NAVL service."

There is considerable detail in the Manual as to "reporting," by the driver. He will report to the local agent immediately on his arrival at a specified handling point, before loading or unloading, and immediately after loading or unloading. If no instructions are on hand at the agent's office, the driver will immediately wire the area dispatcher the footage available after unloading, final destination of shipment on board and date of unloading. Also, check points where he may be reached enroute.

The dispatcher will then wire instructions to the driver, and, under no circumstances, is he to proceed without instructions. If he is given further loading instructions, he should immediately proceed to load and then send another wire, giving shipper's name and his next destination. Then when the driver approaches a dispatch area boundary line, as shown on the company map, the driver must immediately wire the dispatcher in the new area into which he has come, stating his position and his next contact point. He also must specify his further destinations and cargo footage available.

If he does have footage available, at the new contact point mentioned, he must await further company instructions. If he has no footage space available, when he does reach this contact point, his next wire from there should include the word "proceeding." But, in all cases, at this contact point he must check with the NAVL agent. Or, if no agent at this point, he must check with Western Union "Will Call." This must

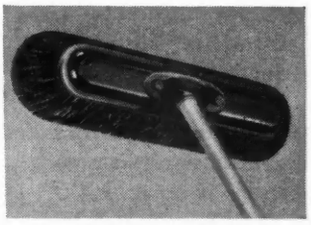
(TURN TO PAGE 128, PLEASE)

SPEED WASH

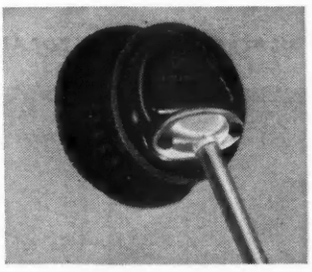
Soaks, Scrubs, Rinses In One Operation!

Picture the Savings!

There's no tool that cuts washing costs like a Speed Wash fountain brush. Clean, fresh water is constantly fed to the surface. Tufts of Nylon and Horsehair protect the finish. Tufts are hand-stitched with rust-proof wire for long service. Block is covered with a sturdy steel back, yet brush weighs only 40 ounces for easy handling. Five foot handle is detachable. Brush head is economical to replace. Write for full details today.



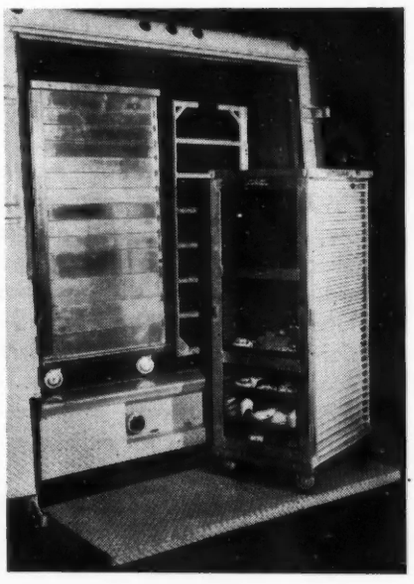
Oblong Speed Wash for Heavy Duty Trucks, $11.75



Round Speed Wash for Light Trucks, $14.25

Milwaukee Dustless Brush Co.
530 N. 22nd St., Milwaukee 3, Wis.

Raising Dough



Loading and unloading of baked goods from bakery to retail stores and restaurants is greatly facilitated by the Anthony Hydraulic Tailgate Lift. It is shown incorporated in a delivery van manufactured by Boyertown Auto Body Works, Inc. Especially designed for ½ to 1 ton trucks, the hydraulic power pump operates off the fan belt

Repairs putting the squeeze on profits?

If motor repairs are putting the squeeze on you, consider this fact:

Quaker State HD Oil keeps *wear* at a minimum. It's made from 100% pure Pennsylvania grade crude oil, refined with the most modern processing equipment and with technical skill unsurpassed in the industry.

It not only protects against friction and heat under most gruelling conditions—but it helps prevent formation of sludge, gum and varnish, and actually *cleans* as it lubricates!

Change to Quaker State HD Oil, and see if repair costs don't start going down—*fast and far!*

QUAKER STATE
HD OIL
AND SUPERFINE LUBRICANTS

Use Quaker State HD Oil for trucks, buses, taxis, tractors.
Use Quaker State Motor Oil for passenger cars.

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

Coordinating Dispatching

Continued from Page 126

be done without fail, regardless of whether or not he is loaded solid or has space available.

If the driver of this NAVL leased equipment should become delayed on the highway, from mechanical failure, or any other emergency cause serious enough to interrupt his schedule, he is instructed to contact the area dispatcher immediately, and advise fully as to the nature of the delay, his contact place, and the probable duration of his delay. Then, before proceeding, the driver must again be "qualified," and given proper clearance either from the Permit Department at NAVL headquarters at Fort Wayne, or from the dispatcher of his then area. In the Agency Manual, this bit of driver instruction is emphasized in capital letters as "IMPORTANT."

In the official NAVL Manual there also is a summary of equipment paint requirements; and requirements as specified in official ICC and state regulations for motor vehicles. Particular attention is given to rules and regulations that apply to safety. All units, before entering NAVL service, are inspected by company personnel down to the most minute detail; and regular safety inspections are made as vans are routed through the many NAVL terminals. Also, there are detailed safety instructions for drivers when away from terminals.

Pertinent Data Compiled

AT EACH area NAVL offices away from Fort Wayne, all pertinent dispatching information will be passed on promptly to the headquarters Dispatching Department. Much of it will come by teletype, supplemented by regular and air mail, telegraph, long-distance telephone, depending on its urgency. From these sources will be compiled the official master teletype tape report submitted to the other area offices from coast-to-coast.

Very important to this final assembly, and for the permanent NAVL headquarters records, is the use of the IBM card records system. For each shipment reported to the headquarters office there will be developed a separate IBM card. On this card could be recorded a total of 29 different records items, and still other entries could be added.

These cards afford the possibility of rapid shipment classifications and tabulations. For example, to any one destination point or over any one route; which information might be of emergency value to take care of unexpected additional tonnage, or to reroute or transfer shipments in case of roads closed or failure of highway equipment. From these cards are developed two large sheets from which the dispatchers work. One sheet is "Register of Unshipped Business," which has parallel colums for shipper name, zone origin, origin location, zone distribution, destination location, pick-up date, cubic feet, contract No., booking agt., loading month and day, van number, zone final, arrival month and day.

The other form is "Equipment Status." It shows, in parallel columns, intermediate zone and location, final zone, van number, loaded month and day, booking agent, origin location, pickup month and day, origin zone, cubic feet, line-haul revenue, contract number, S.I.T. (shipments enroute). This report also shows all the shipments on a particular van as well as its delivery dates and last position reported.

Maintenance Facilities Crowded

IT WAS originally assumed that the new tractor-van maintenance shop at Fort Wayne need not be too large, since all of the 300 to 400 power tractors in

(TURN TO PAGE 132, PLEASE)

Factory Installed
In These Trucks:
International • GMC
Diamond T • Peterbuilt • Dart
Federal • Walter • Oshkosh • Duplex
Ward La France • Coleman • Reo
Hendrickson • Sterling
Available • FWD
At "factory installed" prices you get this Bostrom Hydraulic Seat, the ultimate in truck seating, at lowest cost.
BOSTROM

HYDRAULIC shock absorber and suspension mechanism of the Bostrom seat soak up jolts and jars. Steel frame and bonded rubber pad last the life of the truck. Mechanism moves in rubber—requires no oiling. Fore and aft adjuster accommodates all drivers. Seat coverings are replaced in 10 minutes—eliminating upholstery jobs.

For truck part numbers consult your truck dealer or write:

BOSTROM MFG. CO.

Milwaukee 4, Wisconsin

Costs a little more at the start... costs a lot less in the long run.

OVERLOOKING A BARGAIN!

Comparison proves you can't match these GMC middleweight trucks and tractors for the money

IF you're running equipment in the range between 19,000 pounds GVW and 37,000 pounds GCW, it will pay you to stack up GMC Series 450-470 cab-over-engine trucks and tractors against the field.

You'll find these rugged, brawny jobs are packed with extra-value features that keep them highballing and out of the shop. They're truck-built—to give you years of extra service.

They are powered by the famous GMC 120-HP valve-in-head "workhorse" engine. Piston pins and rocker arms are full-pressure lubricated. There's full-length cooling of each cylinder; spray cooling of exhaust valve seats. Even the exhaust pipe is tongued into the manifold—typical of the extra engineering details that cut down maintenance.

Drivers like them

Drivers say these GMC's are a cinch to jockey. Their shorter turning radius, ball-bearing steering, and cushion-disc clutch take the work out of parking and driving in traffic. Their broad-beamed Wide-angle vision cabs provide extra driving comfort.

All this adds up to equipment that pays big dividends. Runs are finished sooner, with less overtime. Fuel bills are low and maintenance costs down.

Now compare price tags and you'll discover that these GMC's are by far the smartest buy in the middle-duty class—*the most truck at a cost right down with the lowest!*

These jobs come in both COE and conventional models, in wheelbases from 110 to 197 inches. Why not let your GMC truck dealer give you the full story on the type that best suits your need?

GMC Truck & Coach Division of General Motors.

GMC

GASOLINE & DIESEL TRUCKS

FROM ½ TO 20 TONS

GM

GENERAL MOTORS

Your key to greater hauling profits

Coordinating Dispatching

Continued from Page 128

NAVL service are either driver or agent owned; and since the company-owned vans would not require much shop servicing and maintenance work. However, two new operating factors have caused the headquarters shop to become quite crowded. First, the recent four-fold increase in the company tonnage. Second, the owners of all NAVL leased tractors now are required to put their power units through careful periodic safety tests administered by company personnel. Any unfavorable mechanical conditions found are taken care of at that time. Thus, the Fort Wayne shop has become so overcrowded for space that plans for enlargement are being developed.

The shop, with floor dimensions of 60x120 ft, is of steel and concrete construction, well lighted, overhead steam blower heat; and lift doors to three stalls that will take the largest tractor-van outfits.

J. H. Hansell is Supervisor of Maintenance. He has six skilled all-round mechanics and painters, and available shop equipment to handle any type of servicing or overhaul or paint job for tractor or van; with the one exception of heavy van body-frame bending or straightening.

The stock room has a supply of over 900 different tractor-van parts, and all common standard changeable units.

Each day from 10 to 20 tractor-van outfits are safety inspected. If a tractor is left for overhaul on a shop-pay basis, this normally will be completed in two days. It is assumed that, otherwise, all company-leased tractors shall be regularly serviced and given preventive maintenance overhauls every eight weeks to three months, or at 12,000 to 20,000 miles.

At the time when the driver stops for his safety inspection, he can save by getting oil and gasoline through the company shop. A recent added shop service is undercoating to tractors and vans, especially for rust prevention of equipment which comes in contact with salt water or sand.

One of the shop specialties is an end stall reserved for prompt painting, lettering and decals. It is a NAVL "must" that all equipment in company service must carry a good paint job.

Special shop attention is given to the servicing and maintenance of the company-owned vans. And it is a part of the NAVL dispatching program to so route these vans that they can pass through the company headquarters shop regularly.

Shop records include a special card file for all tires, and a folder file for each company-leased truck and company-owned van. Tires for vans usually are recapped at least once and often two or three times.

It is the company plan always to have on hand at this shop three to five extra NAVL vans. When a van passes that is in need of a general overhaul, it is exchanged and left at the shop for this service. The van servicing includes pulling wheels, inspecting bearings, replacing brake linings, checking lights and disinfecting the body interior.

To better these facilities, one of the planned improvements to the headquarters shop is a new annex for van painting, probably somewhat isolated from the main building to reduce the insurable hazard.

END

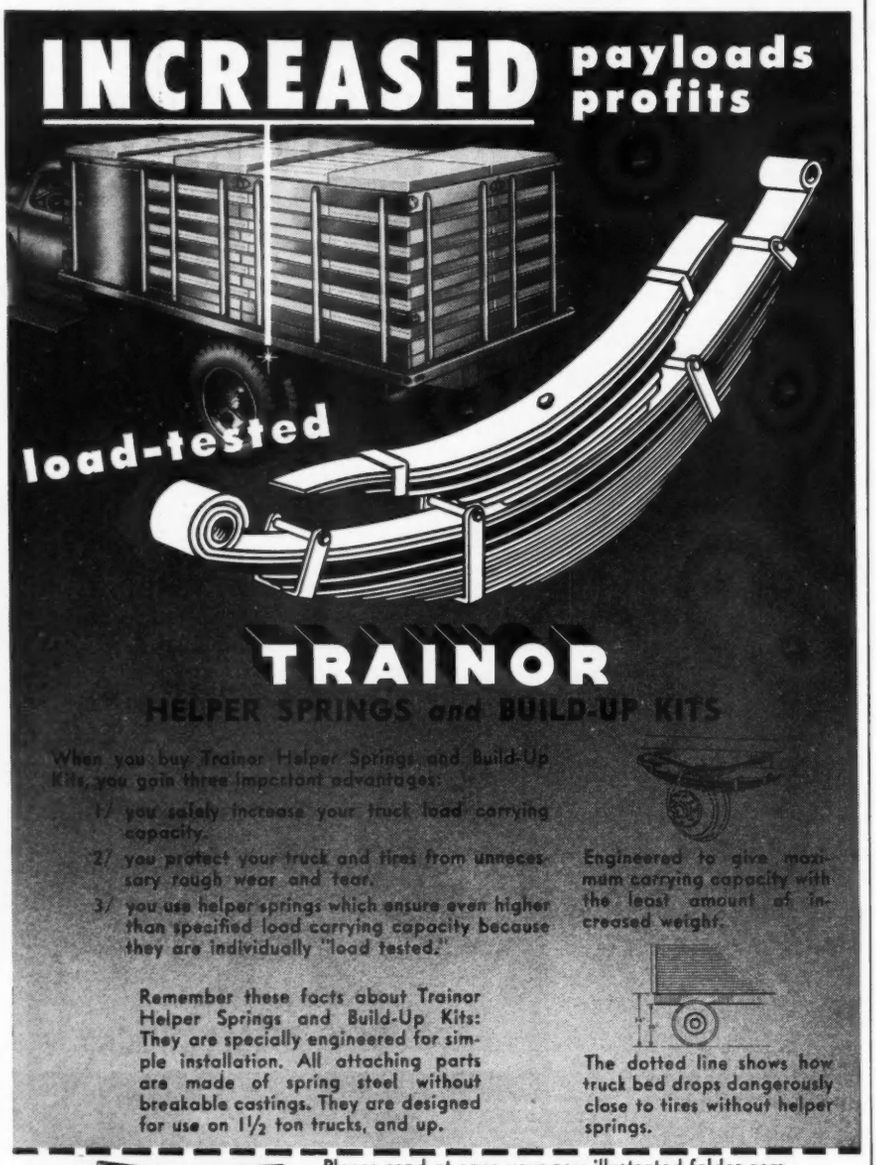
Please resume your reading on P. 52

★★★★★★★★★★★★★★★★★★★★★★★★★★

JOBSERVATION

Some people have a good aim but never pull the trigger

★★★★★★★★★★★★★★★★★★★★★★★★★★


INCREASED payloads profits
load-tested
TRAINOR
HELPER SPRINGS and BUILD-UP KITS
When you buy Trainor Helper Springs and Build-Up Kits, you gain three important advantages:
1/ you safely increase your truck load carrying capacity.
2/ you protect your truck and tires from unnecessary rough wear and tear.
3/ you use helper springs which ensure even higher than specified load carrying capacity because they are individually "load tested."
Remember these facts about Trainor Helper Springs and Build-Up Kits: They are specially engineered for simple installation. All attaching parts are made of spring steel without breakable castings. They are designed for use on 1½ ton trucks, and up.
Engineered to give maximum carrying capacity with the least amount of increased weight.
The dotted line shows how truck bed drops dangerously close to tires without helper springs.

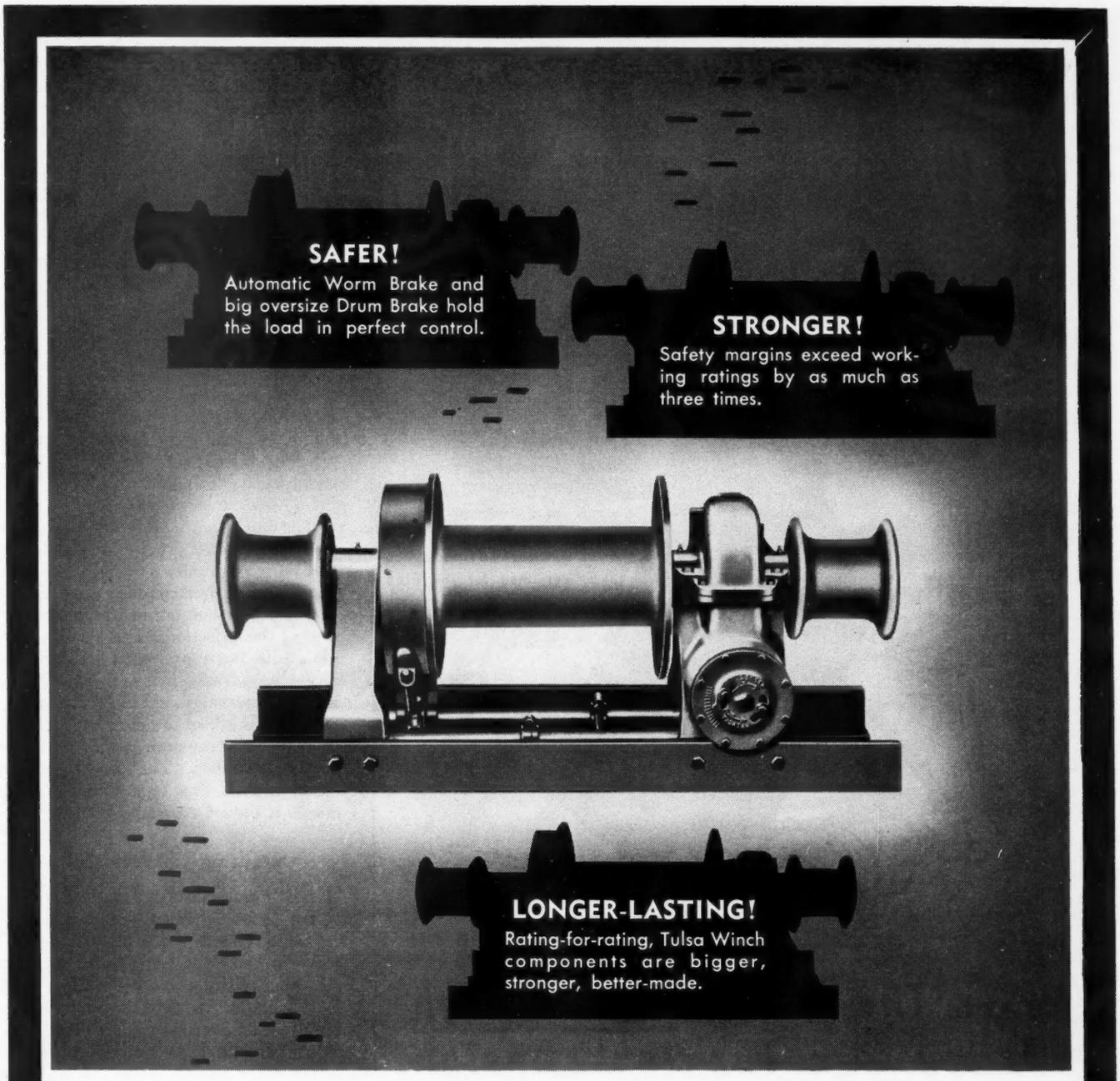
Please send at once your new illustrated folder complete with new low price structure. I understand that this places me under no obligation whatsoever.

NAME.....

ADDRESS.....

CITY..... STATE.....

TRAINOR NATIONAL SPRING CO., NEW CASTLE, IND.
Branches in: Cincinnati, Columbus and Indianapolis


SAFER!
Automatic Worm Brake and big oversize Drum Brake hold the load in perfect control.
STRONGER!
Safety margins exceed working ratings by as much as three times.
LONGER-LASTING!
Rating-for-rating, Tulsa Winch components are bigger, stronger, better-made.

Tulsa Winch . . .

your answer to every lifting, pulling, skidding, loading problem

Tulsa Winch is an all-purpose winch — truck mounted, powered by the truck engine through a power take-off, controlled by the truck driver from his cab. Your truck, equipped with a Tulsa Winch, will handle most lifting, hauling, skidding and loading jobs; will earn more money for you in increased speed and efficiency in load handling. For more profits, equip with Tulsa Winch.

Write for more information.

Tulsa Winch
TULSA, OKLAHOMA DIVISION OF VICKERS Inc.

Diesel Engine Operation

Continued from Page 57

the use of higher compression ratios than approximately 12 to 1, while with the diesel with solid injection, more direct manifolding and more accurate control of ignition can take advantage of the conditions offering increased volumetric efficiency.

Another advantage contributing to the high output of diesel engines is the fact that a larger, freer manifolding makes possible the intake of cold air, rich in oxygen (in contrast to the heated air used in gasoline engines), and because it enters at lower velocity, it is distributed to the cylinders more evenly. Since fuel atomization is not dependent upon the air velocity at the carburetor as in a gasoline model, and since the intake manifold is always wide open, aspiration is more efficient.

While air-fuel ratios vary little in gasoline engines (from 13 to 14 to 1), in the diesel the ratio is varied from approximately 20 to 1 at full throttle to as much as 133 to 1 at idle. At deceleration the diesel engine does not consume fuel, air alone entering the cylinders, while with a gasoline engine the mixture is approximately the same at idle as at full throttle.

In a compression-ignition engine a temperature of around 1000 lb psi is reached as the air is compressed in the combustion chamber. Heat is raised gradually as the piston compresses the air. This makes possible better control of combustion and insures a complete mixture of the fuel and air without the possibility of detonation which is characteristic of the gasoline job using high octane fuel.

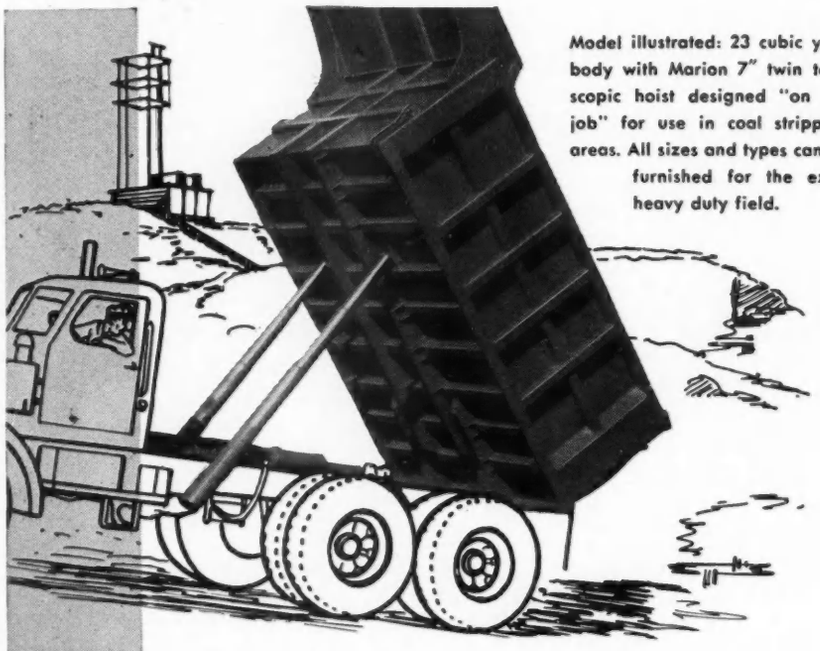
Improper fuel will result in unsatisfactory operation in either engine. The diesel requires a fuel that will ignite and burn as rapidly as possible so that it will ignite immediately upon injection and continue to burn progressively during the injection. The gasoline engine, with lower pressures and temperatures, requires a fuel with slow burning characteristics, and to get this tetraethyllead is added to delay ignition and so reduce the pressure rise in the combustion chamber. The design of the diesel enables this type engine to get the most out of a given pound of fuel.

Operating Characteristics

THE diesel is started with an electric starting motor of heavy-duty capacity. Usually a 24-volt unit is necessary to turn the engine over against the high compression pressures. In most installations two 12-volt batteries are used, the starting circuit being provided for with a series-parallel switch which makes possible the 24-volt system for starting.

Starting does present more of a problem under cold weather conditions, due to the fact that the engine is larger and because cranking speed, coolant temperature and intake air temperature, all affect the starting of the diesel engine. For this reason various devises have been made available by manufacturers. Several methods are used to raise the temperature of the air entering the combustion chamber to the fuel-igniting temperature. In some cases electric induction heaters are used in the air-intake manifold. Glow plugs in other installations may be removed and heated, while in other makes of vehicles they are electrically heated to accomplish the same thing. Another device consists of a flame primer which ignites automatically to heat the charging air between blower and cylinder.

(TURN TO PAGE 136, PLEASE)



Model illustrated: 23 cubic yard body with Marion 7" twin telescopic hoist designed "on the job" for use in coal stripping areas. All sizes and types can be furnished for the extra heavy duty field.

When The Job Is Extra Tough
Marion "On The Job" Design
Pays Extra Dividends

When extra heavy loads cause unusual strain, Marion Telescopic Hoists really pay off . . . in extra performance, better flexibility and longer life. That's because each Marion unit is designed under actual day-by-day work conditions . . . with special features "built in" for the particular job. Check the advantages of a Marion Telescopic Hoist designed "on the job" for your extra heavy duty hauling.

MARION BODIES AND HOISTS

GET MORE DETAILS NOW
Just mail a post card or letter for the complete Marion catalog, or ask your Marion Distributor.

MARION METAL PRODUCTS CO., MARION, OHIO

For Prompt Service on

NAPA Quality Parts for Cars, Trucks and Buses

of all makes

Your NAPA Jobber is a Good Man to Know!

Once he knows your vehicles and their requirements, your NAPA Jobber can give you the fast, comprehensive, *consistent* parts service you require to keep your fleet rolling on schedule.

From his own stocks, your NAPA Jobber can meet the vast majority of your normal requirements on cars, trucks and buses of *all* standard makes and all ages. Seldom-used parts, your NAPA Jobber can get overnight or quicker from the nearby NAPA Warehouse. There's no waiting for "shipment from the factory."

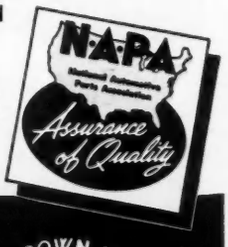
And you can be sure of *quality* parts. All the NAPA lines shown below are recognized by automotive engineers as meeting the highest standards of genuine quality. Many of them are widely used as original equipment.

• • •

If you haven't already explored the advantages of doing business with your NAPA Jobber, get in touch with him now. Let him analyze your parts picture, and show you how NAPA Jobber Service can save you time, simplify purchasing and speed up your schedules.

NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT 1, MICHIGAN

N·A·P·A *is the largest Independent Parts Organization in the Industry!*



Diesel Engine Operation

Continued from Page 134

Either is used on many diesels to aid starting in cold weather. This starting fluid is injected into the intake manifold through a priming device on the instrument panel.

Stopping the engine is somewhat different in procedure from the gasoline engine. This is accomplished by shutting off the fuel. Emergency stops are provided in the form of shut-off valves in the fuel lines along with an intake manifold valve arrangement which cuts off the air supply.

Since diesels are subject to air log if conditions are not right, a hand priming pump is built into the transfer pump on many diesels, and bleed plugs are located on the filters.

Because the diesel rejects less heat to the cooling system through more efficient burning of the fuel, temperature control becomes more critical than that of the gasoline engine. If the diesel runs overcool, the required heat from compression will be dissipated and the combustion efficiency will be reduced. Cold sludging is more pronounced due to the cooler running engines. For this reason temperature should be kept between 165 and 185 deg through the use of thermostatically-controlled shutters, thermostats, engine heaters, etc.

It is true that the diesel will be somewhat more noisy at idle than the gasoline engine, but under power, the difference will be hard to distinguish. Smoke and exhaust odor have in the past been problems with diesel operators. However, all evidence points to the fact that if fuel adjustments are proper, if the engine is kept in good condition, and if the loads are not in excess of what the power plant was designed to pull, smoke and noise can be controled. New mufflers offering better control of noise with reduced back pressures are on the way, according to reports from manufacturers.

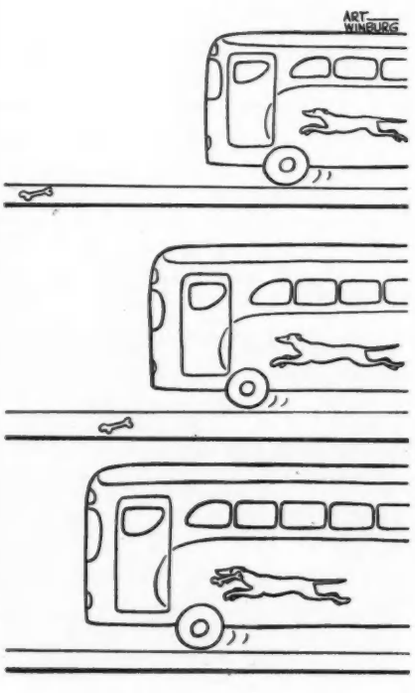
Safety has been mentioned in a previous article as one of the advantages of diesel operation. The fuel is less hazardous than either gasoline or butane, and drivers, cargoes and owners will be exposed to less risk. As far as driving is concerned, the driver need not fear that conditions will vary much over that of the gasoline engine. Aside from starting and stopping, he will hardly know the difference.

Maintenance Problems

IT IS generally agreed that 90 per cent of the maintenance on a diesel is similar to that of a gasoline engine. However, it is similarly recognized that fits and tolerances must be more close than other engines due to the high pres-

(TURN TO PAGE 138, PLEASE)

The Mikes You Need!
Certified Accuracy
CENTRAL MICROMETERS
for every Automotive Use!
OUTSIDE MICROMETERS
Available individually or in sets for measurements from 0 to 6". Ranges of sets: 0 to 3", 0 to 4", and 0 to 6". Furnished with or without ratchets, locknuts, and standards. Ask for Catalog.
SPECIAL MICROMETERS
Connecting Rod Mike 350RL (left). Range 1½" to 2½", graduations on underside of barrel for easy reading. Main Journal Mike 510MBM (right). Range 0 to 5". Measures journals without removing crankshaft from engine. Ask for Catalogs.
INSIDE MICROMETERS
Ranges 1½" to 8" and 1½" to 12". Ask for Catalog.
REMOTE CONTROL
No. RC100 — for use with inside micrometers for measuring undercuts and other inaccessible dimensions. Ask for Catalog.
THE CENTRAL TOOL COMPANY
474 Wellington Avenue
Cranston 10, Rhode Island
CENTRAL Certified Accuracy MICROMETERS
Largest Selling Micrometers in the Automotive Field, throughout the World.



Improve working conditions with the scientifically lighted, properly ventilated DeVilbiss Spray Booth

DeVilbiss Spray Guns come in many models with tips to meet all painting problems.

DeVilbiss Air Compressors, in sizes up to 15 horsepower, give you more air for your money.

There are DeVilbiss Service Guns for every need; DeVilbiss Hose for air, paint, gasoline.

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The experience of an overwhelming majority of the bus fleet operators honored by the coveted Maintenance Award confirms the fact that DeVilbiss Spray Guns, Booths, and other finishing equipment cut operating costs, keep maintenance work on schedule.

In your shop, use the same DeVilbiss equipment the award winners use to reduce your maintenance costs, keep your fleet in first-class condition longer.

Ask your industry friends about their DeVilbiss equipment . . . let us send you the interesting facts.

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means Quality *in all four . .*

SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS

Diesel Engine Operation

Continued from Page 136

sures involved. Dirt, the prime enemy of the gasoline engine, is disastrous to the diesel, whether present in the fuel, in the injection equipment or in the moving parts of the engine proper. For this reason service will require strict adherence to rules of precision and cleanliness.

The fuel pump must work against high pressures and must provide the right amount of fuel at the proper time if maximum performance is to be attained. Thus accurate machining and fitting is required. Any dirt in any amount working on parts in the pump plunger and barrel, for example, which are fitted to 125 millionths of an inch, is sure to raise havoc with fuel metering and efficiency. It becomes very important therefore, that storage tanks, supply tanks, filler spouts and fuel filters receive periodic attention.

Considering the close tolerances mentioned above, it behooves every operator to decide before hand the extent of maintenance feasible in his shop. It become obvious that not every shop will be equipped with specialists as well as tools and testing equipment to do complete fuel pump service on many makes of diesels. Unless the operator wants to invest heavily in fuel pump testing apparatus and train specialists to do this repair and overhaul, it may be wise to send such units out to factory branches; however, the number of vehicles, mileages, labor availability and many other factors will influence this decision.

New nozzles should be inspected at 4000 miles, and every 18,000 miles thereafter. At this time the face should be cleaned of carbon with carbon tetrachloride and a brass brush. The spray pattern should be checked on a nozzle tester and set to specifications. Pop pressure should be set to manufacturer's recommendations.

Governors should not be tampered with under normal conditions. These units are usually factory sealed and should be replaced with rebuilt assemblies if they show up as faulty.

In the matter of fuel selection the operator should be as careful as in his choice of gasoline. Manufacturers have established minimum specifications as required of their engines. The April issue of CCJ provides diesel fuel specifications as set up by various fuel suppliers.

Oil selection is critical in the diesel since sludge tendency and dilution is more pronounced in the diesel. Ring belt temperatures being higher, subject the lubricating oil to high heat. Drain periods should be set up consistent with the operation. Manufacturers recommend drainage at 1500-mile intervals in a move to keep engine wear and sludge to a minimum. The best lubricant must have properties which either prevent deposits or cause carbon and foreign particles to be suspended harmlessly.

Oil contamination caused by poorly filtered air, corrosive fumes, high-carbon fumes and sludge, will be one of the chief problems of the diesel owner. Accordingly it will be necessary that adequate and efficient filters be used and that they be serviced periodically. Good crankcase ventilation will do much to offset the effects of corrosive fumes. Use of clean burning fuel is the surest method of reducing combustion chamber deposits, while periodic adjustment and service of the injection system will help considerably in reducing crankcase dilution with the resultant sludge. With adequate cylinder wall temperatures, freedom from lugging and good fuel and oil, the operator will have no particular problems with contamination.

END

Please resume your reading on P. 58

Dirt can't channel through this oil filter...

. . . there's nothing to pack down under pressure

Sudden surges of oil pressure caused by stop-and-go driving will increase the tendency of old-style oil filters to pack down . . . leave a "channel" for dirty oil to pass through with its engine-wrecking dirt and abrasives.

But there are no "loopholes" in a Purolator Micronic* Oil Filter. It is a scientifically designed barrier through which the oil must pass. It cannot be affected by sudden changes in oil pressure . . . or by temperature changes or water dilution.

And why? Because Purolator Micronic* is made of cellulose specially impregnated with plastic . . . engineered into an accordion-pleated form that provides a filtering surface over 10 times that of old-style filters. This element filters engine-wrecking particles measured in microns (.000039 of an inch) . . . and does it faster.

Fewer engine repairs and less downtime is your money-saving pay-off for specifying Purolator Micronic* Oil Filters for your entire fleet. Your near-by Purolator supplier can take care of you for almost any make of vehicle . . . or type of original filter. Get him to estimate your needs today! *Reg. U. S. Pat. Off.

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Rahway, New Jersey and
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MICRONIC OIL FILTER
"FIRST IN THE FIELD OF FILTERING"

Belden Primary Wires are coded for quick identification. You never make a mistake, you Always use the Right Wire.
You can Be sure of a Profit—Belden Wire strips easily; tinned copper conductors solder faster; assure fast installation.
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BATTERY CABLES • SPARK PLUG WIRES • LIGHTING WIRES

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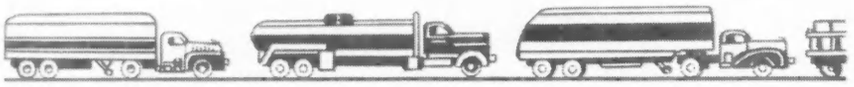
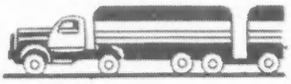


are switching to . . .

GUN IRON BRAKE DRUMS



ASSOCIATED TRANSPORT, INC.

is one of them . . .

Associated Transport operates over 3000 trucking units. In an operation of this size, replacement parts must prove their economy under widely varying conditions. In the case of brake drums, Associated Transport specifies Gun Iron Brake Drums for replacement.

Like other truckers, both large and small, they have found that Gun Iron Brake Drums wear longer and give uniform, dependable braking almost completely free of heat-checking or squeal. This is because the dense, close-grained structure of Gun Iron has great resistance to heat, with a very low coefficient of expansion (reducing "fade" to a minimum). In addition, its superior resistance to frictional wear has been conclusively proved to give more road-miles per drum.

Hunt-Spiller makes Gun Iron Brake Drums to original equipment specifications for most buses and trucks. They are accurately machined for easy, kink-free installation and are fully guaranteed. Investigate today how Gun Iron Drums will reduce *your* replacement costs and eliminate hours of brake service per unit.

SEND FOR FREE BULLETIN

This bulletin gives the whole story on Gun Iron Brake Drums. It also contains actual proof of their economies on buses and trucks.

HUNT • SPILLER

MANUFACTURING CORPORATION

AUTOMOTIVE DIVISION

399 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

Brake Machine

Continued from Page 67

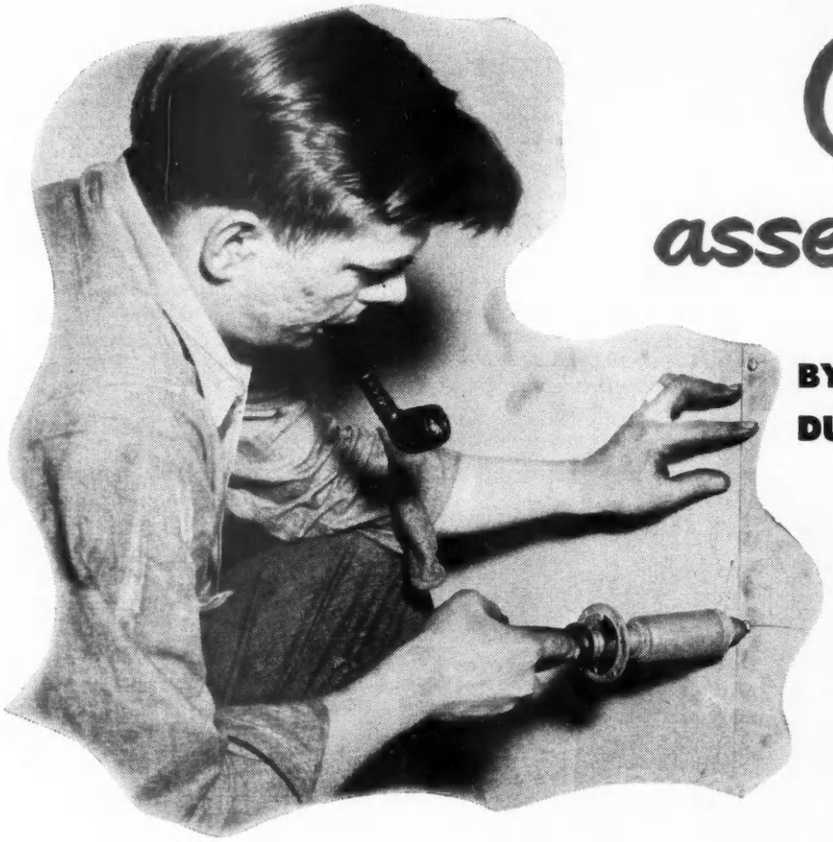
mounting stem welded to the tubular bracket (9), is threaded. The tubular bracket (9), supports the plate (6A), on which the drive mechanism is mounted. A spanner nut (10), threaded on the mounting stem and supported by the mounting tube (11), provides for the vertical adjustment of the machine. Located at the base of the mounting tube (11), between the journal gussets, is an adjusting screw (12), which permits tilting of the entire beam assembly.

At the four corners of the base plate are pointed screws (13), to lock the machine in place after final setup adjustments are made. Casters are also mounted to the base plate for ease in rolling unit to location. Switch (1A), reverses the direction of rotation and travel of the grinding head.

A DETAILED set up and operational procedure follows:

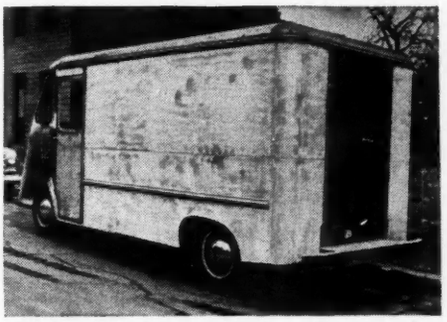
1. Raise vehicle axle approximately 23 to 25 in. above the floor.
2. Install fixed height safety stand to protect the machine in the event of a hoist or jack failure.
3. Remove all bearings, hubs, nuts and other internal parts which would be contaminated by the grindings.
4. Measure drum diameter.
5. Set grinding head for drum diameter.
6. Install spindle or load tube adapter. (A front and rear adapter for each model vehicle is necessary.)
7. Lubricate adapter tube and bronze bearing in grinder head.
8. Roll machine into set up position and adjust for height and tilt.
9. Push machine well up on adapter tube.
10. Install dial indicator on grinder head and rotate head without grinder disc running. If machine is as much as .010 in. out of alignment, the drive mechanism will bind and slip through the "V" belt drive. This was intended to act as a safety feature.
11. Make necessary adjustments to the machine to operate within .003 to .005 in. concentricity.
12. Set grinding disc over center of brake shoe and engage half nut.
13. Advanced base lock screws (13) until slight contact is made with floor.
14. Turn on grinder head and drive system.
15. Advance brake shoes with slack adjusters, taking moderate cuts until all shoes are ground evenly.

(TURN TO PAGE 142, PLEASE)



Cuts assembly costs

BY SWITCHING TO DU PONT EXPLOSIVE RIVETS



Completed truck *before painting shows clean, neat appearance of tight-fitting Du Pont Explosive Rivets.*

Split-second riveting replaces time-consuming screw-fastening operation in Harrisburg shop

Drill, place, set—1, 2, 3—that's how easily and quickly fastening is done at the Harrisburg Truck Body Company. Here Du Pont Hi-Speed Industrial Explosive Rivets replace metal screws in 16-foot panel truck assemblies. Workers move along at this rhythmic pace right past usual trouble spots, for these Rivets make blind joints and tight corners as easy to fasten as open seams.

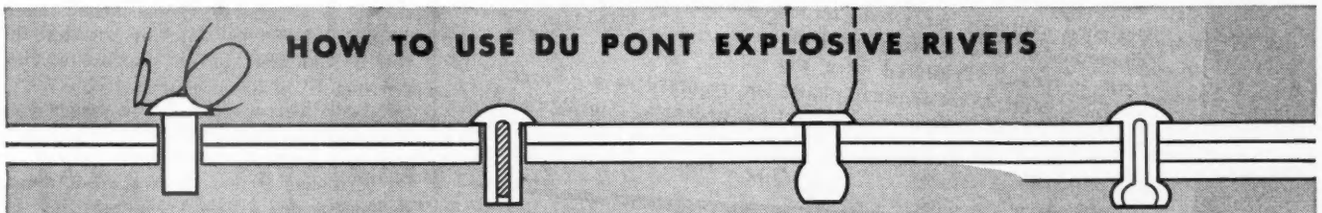
This speeded assembly pares production costs to a minimum. Just look at the savings on this *one operation.*

Fastening molding strips where body sheets joined used to take 8 to 10 hours of tiring handwork. And even then water frequently seeped under the molding and rusted seams. Now the entire operation has been eliminated. Body sheets are lapped and fastened with Du Pont Explosive Rivets in half the time and at less cost. Results are excellent . . . gratifying. Overlapping seams eliminate rust and corrosion, give cleaner, neater appearance.

They save on stock costs, too. For with Du Pont Explosive Rivets' wide gripping range only two sizes are needed for jobs that previously required twelve sizes of metal screws. What's more, Explosive Rivets have greater holding strength than sheet-metal screws . . . stand up better under stress of rough roads and rugged going.

Why not examine your fastening operation more closely and see if Du Pont Explosive Rivets can cut fastening costs for you? You'll find complete information in a new manual "A4." Write for it today. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

HOW TO USE DU PONT EXPLOSIVE RIVETS



Insert Explosive Rivet into drilled hole—close tolerances are no longer necessary.

Cross-section diagram shows minute explosive charge in cavity of Rivet shank.

Touch Rivet head with heated iron—shank expands in as little as one-half second.

Shank fills hole completely. Note how barrel-shaped head grasps varying thicknesses.

DU PONT
REG. U.S. PAT. OFF.

DU PONT HI-SPEED
INDUSTRIAL EXPLOSIVE RIVETS

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Brake Machine

Continued from Page 140

16. During the grinding operation reverse the rotation of the grinding head through the reversing switch (14).

This machine grinds brake shoes to the exact circular contour of the drum, provided the foregoing procedure in the set up and operation is followed. Maximum shoe contact during the initial brake applications is therefore assured.

Brake Squeal

WE HAVE brake squeal, but fortunately it is not enough to cause alarm. In many cases the grinding of the brake shoes has been alone responsible for the elimination of squeal. We do not have any other sure-fire method of eliminating brake noise, but we like to believe that with a mechanically good braking system, and properly fitting shoes, noise can be controlled.

We remove hubs and drums every 30,000 miles for inspection and cleaning. In the event we experience unusual squeal or howl from a brake system, we inspect the entire system closely. Should this inspection fail to disclose a broken spider, worn shoe bushings, lost shoe rollers, or return springs or any other defective or missing part, we will then circle grind the lining, provided the lining thickness is adequate. If the lining thickness is inadequate, new drums and lining are installed.

A great deal of emphasis is placed on cleanliness during a relining job, and we are careful to replace all worn parts, particularly the brake shoe return springs. Unless these springs have the proper tension, they are discarded and replaced.

All brake rigging parts requiring lubrication are equipped with the original Alemite pin type fittings. They are greased with a high melting point grease every 6000 miles, with a hand-operated grease gun. This practice is to eliminate over greasing which is inevitable if done during the regular chassis lubrication, interval.

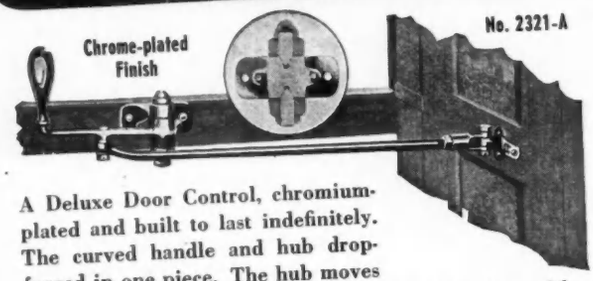
Shoe rollers are lubricated at the time they are installed and during a 30,000 mile inspection. We leave the cam dry. We have had better success with a dry cam from the standpoint of flat rollers.

By following the foregoing practices and procedures, it has been our good fortune to escape wholesale brake squeal and its resultant problems.

END

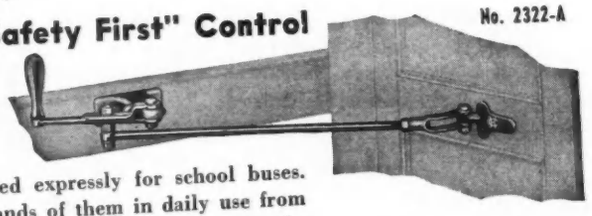
Please resume your reading on P. 68

"Cleveland"
DOOR CONTROLS



A Deluxe Door Control, chromium-plated and built to last indefinitely. The curved handle and hub drop-forged in one piece. The hub moves on two cone-shaped, self-lubricating pivot bearings of hardened steel. Easily adjusted to take up wear—rattle-free during the life of the bus body.

"Safety First" Control



Designed expressly for school buses. Thousands of them in daily use from coast to coast. Preferred over the ordinary controls. Cadmium plated for rust-resistance. Forged steel grip. Connecting rods adjustable as to length. Durable and easily operated.

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Federal Aid for Highways

Federal-Aid for highways in fiscal 1952 53 will be at the rate of $570 million per year if the bill which was finally approved by the House Public Works Committee should survive floor debate in the House and consideration by the Senate.

This bill continues, generally, the policy of Federal-Aid to the states for highways which was developed by the 1944 and 1948 highway acts. For the first time, this bill specifies a separate fund, $70 million, for the Interstate System and provides a 75-25 Federal-State matching ratio for this portion of our highway system. Heretofore, 50-50 has been the matching rate and it will be continued for the balance of the program.

Other differences include a larger appropriation for parkways, forest roads and trails on Federal lands, and a provision for borrowing by the states against future Federal grants. This latter provision is intended to offset the pressure to build toll financed highways.

Proponents of the measure expect relatively little trouble in getting it approved by the House, but greater difficulty in the Senate. No bill for Federal-Aid has as yet been introduced in the Senate but one is expected to be introduced now and there is a bill pending before the House.

No other trucks on earth offer so much for so little

● By all standards, you'll find Marmon-Herrington *All-Wheel-Drive* Fords *the world's best buy* in multiple-wheel-drive trucks . . . best from the standpoint of performance-ability—carrying capacity—reliability—low operating and maintenance cost—ease and economy of service.

Today, Marmon-Herrington *All-Wheel-Drive* Fords are making tough jobs easy, all over the world—transporting capacity loads through deep mud, sand, snow; up steep hills and mountain grades . . . and doing it with amazing speed, ease and economy.

Marmon-Herrington *All-Wheel-Drive* Fords are available in 30 versatile models. Wheelbases range from 110″ to 220″—G.V.W. from 5,300 lbs. to 35,000 lbs.—forward speeds from 4 to 10.

Don't buy any truck until you've had an on-the-job demonstration in a Marmon-Herrington *All-Wheel-Drive* Ford. Write for name of nearest dealer and illustrated literature.

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AUTHORIZED Ford SERVICE

Marmon-Herrington *All-Wheel-Drive* Fords are, for the most part, built of standard Ford Parts. Consequently, fast, efficient, low-cost maintenance and repair service is available at Ford dealers everywhere. When, occasionally, special parts are required, they are quickly obtainable through Marmon-Herrington distributors, conveniently located in principal cities the world over.

MARMON-HERRINGTON All-Wheel-Drive FORDS

Toll Road Debate

Continued from Page 74

tracked for political reasons to slow traffic roads. Such channeling of the funds leads only to further deterioration of the main highway system.

Conceivably, an individual might purchase stock parts and assemble a complete motor vehicle. As a matter of practical economics, he buys an automibile as an integral unit. Appropriately this principle may be applied for the sound policy of financing highways.

Motorists have demonstrated very little concern over the payment of tolls, but on the other hand, have derived considerable satisfaction in the facilities provided . . . the motorist has shown a responsive enthusiasm for the tangible advantages available upon payment of the toll tax.

The Maine turnpike based its initial traffic estimates on a 4 per cent traffic increase per year. Actually, the second year produced a gain of almost 10 per cent over the first year. Although no bonds have been retired as yet, proponents say this is unfair criticism since all calculations are based on long range traffic increases.

Toll Disadvantages

THE claim that toll roads justify an extra fare, because of their "super" highway character, ignores two important considerations. First, is the fact that highway separation, bridge structures, median strips, etc., are essential elements of any modern highway, toll or free. Since highway users pay an indirect per mile charge on all highways through gasoline taxes, it must be recognized that the heaviest traveled routes return the largest per mile revenues. Thus, the least traveled roads become the most expensive.

No one has to use a toll road. But it is obvious that when a toll road parallels an existing road, the old road is, or soon will, become obsolets; and will remain so in order to not compete with the toll road. This poses a particularly hard burden on the motorists traveling relatively short distances and unable to use the toll roads, even if they want to, since entrances are built only when and where they pay off.

Since bond financing has been demonstrated to be sound on a toll basis, it is even sounder for the same kind of facilities on a toll-free basis. Here, the overhead costs associated with toll collections are eliminated, and the credit situation, backed by the state government, may well provide a much lower interest rate.

Bridges and tunnels are not comparable to toll road facilities, since in most cases they are monopolies. There is no competitive form of free facilities.

The principle of bond financing of toll roads has not proved economically sound. The real test can come only in a depression.

The Federal government has not recognized toll financing as sound procedure, and does not permit Federal aid funds to be used for toll road purposes.

(TURN TO PAGE 146, PLEASE)

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An All-Star Truck
Constructed of All-Star Units
Doing an All-Star Job Since 1920

DEALERS: Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

Biederman Trucks win by performance. Inquiries regarding dealership solicited.

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BIEDERMAN MOTORS CORPORATION
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Ford 'Hot Rods' For Police

Ford Motor Co. is building souped-up "hot rods" capable of reaching 60 miles an hour in first gear in 11 seconds, for police work.

The 110-horsepower cars are designed to enable police to overtake "hot rods" and automobiles driven by powerful modern engines. The engines can send the car hurtling at over 80 in less than a minute, and speeds of more than 100 are possible with wide-open throttle.

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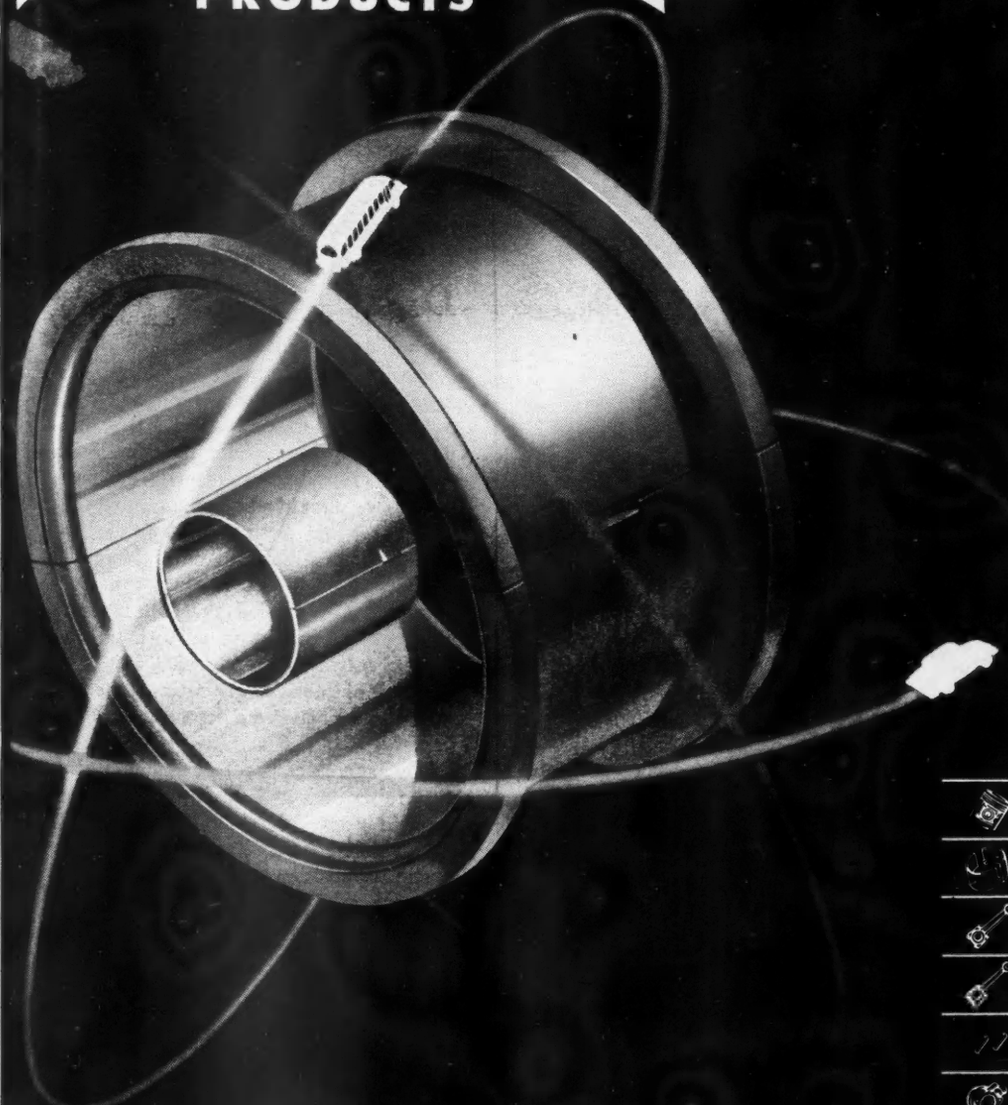

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BOHNALITE Bearings, Like Other Genuine BOHNALITE Products, Are Superior for Smallest Automotive to Largest Diesel Engines!

No wonder *BOHNALITE* bearings are preferred by Jobbers and Dealers everywhere who know these facts! *BOHN*, one of the world's largest producers of bearings, sponsored the development of the fully interchangeable type of bearing 25 years ago. *BOHN* was first to produce the copper-lead lined aircraft bearing, and later pioneered its practical application to automotive engines.

Today's *BOHNALITE MAIN BEARINGS, CONNECTING ROD AND CAM-SHAFT BEARINGS* possess an unexcelled quality, (backed by a really complete bearing service) that could only be achieved by *BOHN'S* many years of bearing development and production know-how! *BOHNALITE* bearings have superior alloys, processing, machining, back contact, and precision fit.

BOHN ALUMINUM & BRASS CORPORATION

Executive Offices • Detroit 26, Michigan

Service Division, Holland, Michigan

Toll Road Debate

Continued from Page 144

The arguments that toll roads are better and safer cannot be sustained. There is no reason why public roads cannot be built to the same characteristics where the need is proved and the volume of traffic warranted. Actually, toll roads are apt to increase traffic accidents on the paralleling roads, since there is always a tendency to decrease maintenanc on these parallel facilities.

A toll of 1 cent a mile on passenger cars is the equivalent of a gasoline tax of 12 to 16 cents per gallon.

Even toll proponents admit that financing costs are higher, since toll gate operation must be maintained 24 hours a day. Access gates, to be economically justified, should take in a minimum of $25,000 a year. In Maine, for the calendar year 1949, cost of collection alone was 12.1 per cent of the total amount of toll.

Toll roads are obviously a method of double taxation. Those who cannot afford to pay the double tax are denied improvements in paralleling highways.

The Maine turnpike, 44 miles long, was built at a cost of $20,600,000. It parallels Route 1 which could have been converted into a four-lane facility at a cost of $4,000,000. (These estimates based on Maine highway department and the Bureau of Public Roads.)

To be self-liquidating and well-maintained, the Maine turnpike should take in $1,443,000 a year. In 1949, the tolls amounted to $871,000, leaving a deficit of more than $571,000. (Admittedly, this was only the first year of operation, and it is expected that this deficit will be greatly decreased in future years.)

Conclusion

DESPITE the heated interest in toll roads, the Congress unanimously approved the recommendation of its Committee on Highway Planning, Finance and Administration opposing all toll roads.. The Congress further proposed that, if authority is given by a state for any toll road project, such authority should be surrounded by safeguards protecting the public interest. These included careful control of the bond issue and actual construction, and a provision that all revenue in excess of operating cost should be used to retire the bond issue, and that, when all obligations are retired, the toll road should become a free public highway.

The same committee, incidentally, also reiterated its stand that all Federal aid grants should be matched dollar for dollar by the state. This was in strong opposition to certain interests who are advocating increased proportion of Federal aid, particularly for the construction of the interstate highway network.

Support for Uniform Laws

ANOTHER highlight of the Congress was a discussion on the ways and means of getting support for uniform traffic codes. Three of the four states who had made the best progress in the adoption of such laws were represented by Commissioners Hammond of Utah, Clarke of New Hampshire, and Volk of Wisconsin. S. S. Von Loesecke of the Automobile Legal Assn. represented New Hampshire.

All of the speakers concurred in these general conclusions: Work on the uniform codes should be done by carefully selected committees representing both highway officials and user groups; all available helps should be used, including the work book and other data available from the National Highway

(TURN TO PAGE 148, PLEASE)

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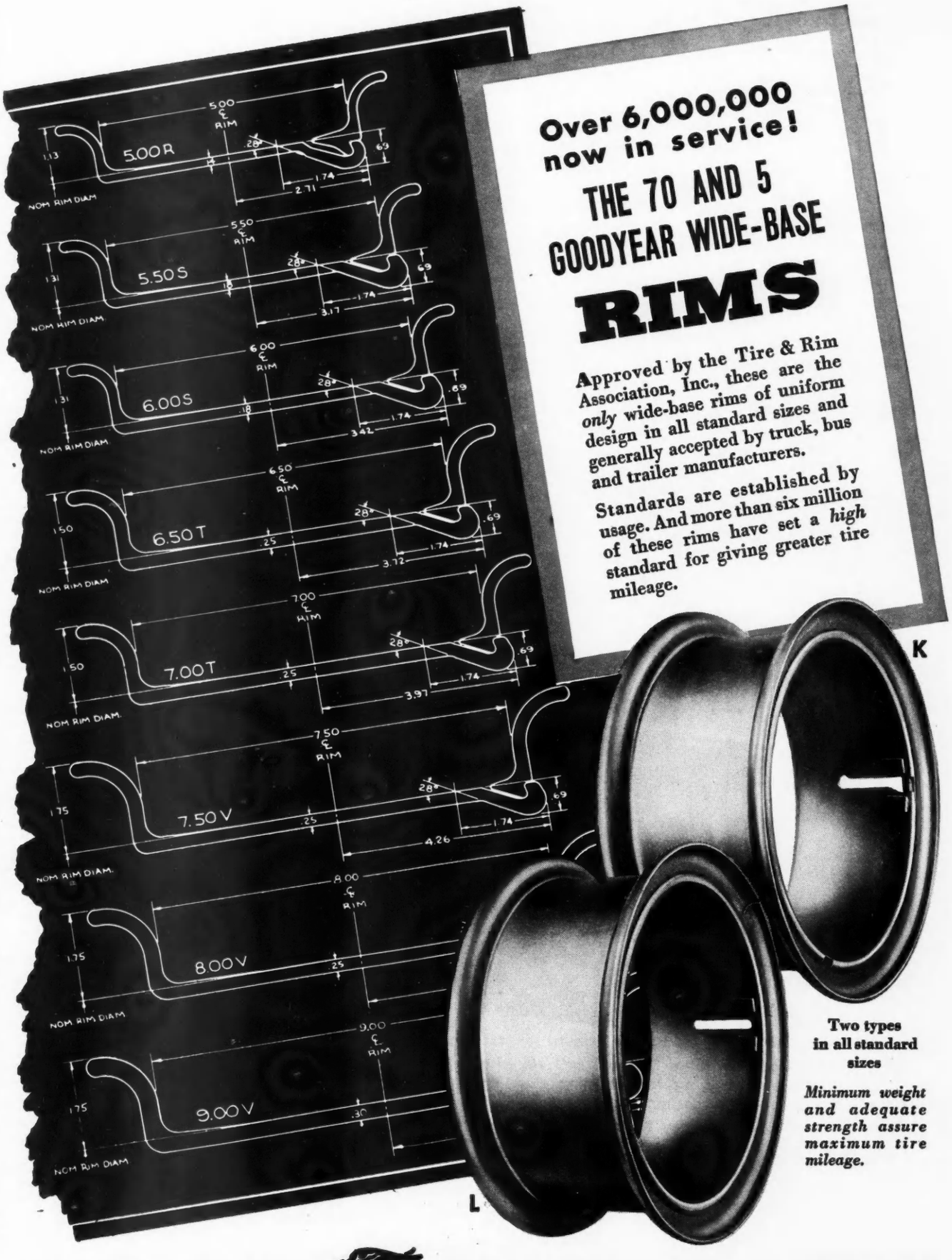

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Standards are established by usage. And more than six million of these rims have set a *high* standard for giving greater tire mileage.

Two types in all standard sizes

Minimum weight and adequate strength assure maximum tire mileage.

GOODYEAR RIMS

Toll Road Debate

Continued from Page 146

Users Conference; work should be done in the open with all interested parties being given the opportunity to express their views; and maximum possible publicity should be given the project to assure public acceptance.

In the final report of the Uniform Laws Committee, State Highway Users groups were urged to compare their own laws with the model code and to push the adoption of the uniform codes.

The 50-50 Argument

THE "Federal role in highway development" was the subject of still another panel discussion in which heated debate centered over the extent to which Federal grants should be made to the states. While some interests argued that Federal grants should exceed the current 50-50 matching principal on interstate regional highway developments, the majority urged the retention of the 50 per cent maximum, on the basis that any figure above this amount would result in Federal control of state highway departments.

The Big Names

FROM the rostrum of the general sessions, those in attendance heard Chairman Albert Bradley (executive vice-president of General Motors Corp. and just re-elected chairman of NHUC) urge all to drive forward in the last half of the century, using as their guide an "Inventory at the Halfway House." They heard Lee Jackson (Firestone Tire & Rubber Co.) outline fantastic but inevitable things to come in "Highway Transportation of Tomorrow," and from John Lovejoy (Seaboard Oil Co.) they got the story of spectacular oil development under private industry. To bring in 23,000 producing wells, he pointed out, the industry also drilled 13,000 dry ones, at a loss of $1½ billion. "What government official," said he, "could explain away 13,000 dry holes?" should the project have been nationalized. Yet, the industry took this risk and for its efforts produced more oil reserves than the world has ever known.

From blind and able lawyer Walter R. McDonald, general solicitor of the National Assn of Railroad and Utilities Commissioners, the conferees heard a graphic recap of how the railroads forced the canals out of business nearly 100 years ago. The prophetic implication was clear. Now the shoe is on the other foot and, unless all forms of transportation can work together, at least some of them may be doomed.

The final general speaker was Dr. J. O. Christianson, Superintendent of Agriculture at the University of Minnesota. No printed brief could do justice to his talk entitled, "The Roads Americans Travel." Suffice it to say that the roads he spoke of were not concrete highways but, rather the paths of education, courtesy, patriotism and religion as opposed to the "isms" of a controlled state. His talk is recommended listening to all who may one day have the opportunity.

END

Please resume your reading on P. 76

Railroads Need Aid

In granting common carrier certificates to three Vermont trucking companies, the Vermont Public Service Commission said in its report, "Rail facilities of necessity must be supplemented by more flexible and rapid motor truck transportation." The commission found that the service provided by the three applicants was necessary for the economic well-being of the State.

The certificates are to be awarded to the St. Johnsbury Trucking Co., Inc.; Gay's Express, Inc., and Hathorn's Transportation Co., Inc.

PUT THIS *Idea Book* TO WORK
for Faster, Lower Cost Cleaning
in Your Shop

- Just the manual for truck operators!
- 64 pages of fleet cleaning "know-how" covering all sorts of cleaning problems ranging from engine cleaning and sludge prevention to concrete floor maintenance.
- Save time, labor and money through better cleaning.

Write today on letterhead for your free copy.

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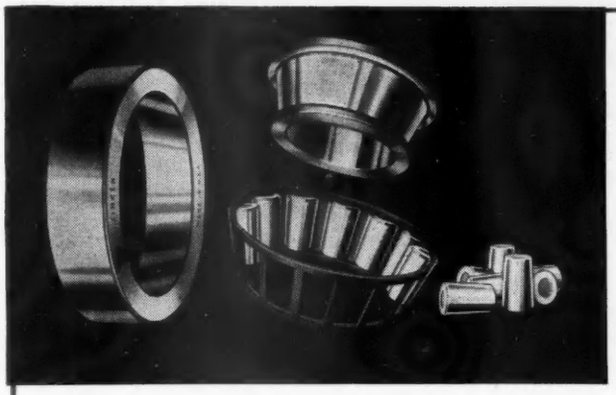

Design leadership

The tapered roller bearing was pioneered in 1899 by "Timken". And ever since, important improvements have been introduced by The Timken Roller Bearing Company. For example, Timken developed the one-piece multiple perforated cage to insure exact spacing of the rollers. And to provide positive roller alignment Timken introduced wide area contact between the roll ends and the ribs. For almost fifty years this leadership in design has helped make Timken bearings first choice with leading truck manufacturers.

Another reason why TIMKEN® bearings are first choice with truck manufacturers

SINCE THEY'RE BEST WHEN THE TRUCK IS NEW . . . . THEY'RE BEST FOR REPLACEMENT, TOO!

OTHER BEARINGS may *look* like Timken bearings, but only Timken gives you all these advantages: 1) advanced design, 2) precision manufacture, 3) rigid quality control and 4) special analysis steels. That's why Timken bearings assure trouble-free performance in your trucks. Always look for the trade-mark "Timken" on every tapered roller bearing you buy. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN
TRADE MARK REG. U. S. PAT. OFF
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST →◫← LOADS OR ANY COMBINATION →✳←

Detroit Dispatch

Continued from Page 31

prompted an extension to the small jobs. White also reports that business is picking up in the heavy duty truck line with March deliveries the largest of any month since June, 1948, when the heavy duty market cracked. Earnings for the first quarter reflect the improvement in business, totaling $363,000, compared with a net profit of $185,491 for the entire first half of last year.

Truck Transmission Obstacles

Truck sales departments would very much like to have an automatic transmission to offer on light units, especially for door-to-door delivery jobs. A leading truck engineer, however, points out several obstacles to using passenger car automatic drives on even light trucks. He says the components used in a passenger car drive are not built for the excessive stops and starts or the heavy loads carried by commercial vehicles. Part of the automatic transmission could be used, but to fit it for truck use would require considerable tooling for heavier parts and with the resulting low volume the price would be hiked considerably above what it is now.

Oltman Not For Sale

The truck body manufacturing plant of Oltman Manufacturing Co. in Detroit definitely is not up for sale as had been reported. Although the company has encountered some financial difficulties, it is still operating as a going concern while a reorganization plan is under consideration.

GMC Truck Sales High

Backing up mention in this column last month about the shakeup at GMC Truck & Coach Div., April sales figures show that month to be the highest in the company's history. The division sold a total of 8495 trucks in April, the second successive month that deliveries exceeded 8000 units. Production during April also was the highest of any April on record, exclusive of military vehicles, with 8925 units turned out.

Twin Coach Changes Directors

Twin Coach Co. has shaken up its board of directors. Three vice-presidents and the secretary-treasurer are retiring from the board, but remaining in their offices with the company. Twin Coach reported a net loss of $114,000 for the first quarter of this year.

Truck Deals Still Rugged

Even though business in the heavy truck field is improving, we still hear some reports about wild financial deals on truck purchases, indicating that competition still is very rugged. Most extreme to date is one involving the sale of several units with no down payment and five years to pay the balance. Not uncommon on large deals are terms of 10 per cent down and three to four years on the balance. Some of the truck companies are carrying their own finance paper, either in whole or in part, which ties up a considerable amount of capital.

Reo Bus Driver School

Reo Motors Inc. is conducting a bus driver training school in cooperation with Michigan State College. The school consists of 4-day courses under the college coordinator of driver training and accommodates 20 drivers a week.

END

Please resume your reading on P. 35

Everything you need
FOR SUCCESSFUL BRAKE SERVICE!
Fine parts . . . quick service . . . helpful technical information—these are what you need for successful, profitable brake service. And these are what you get from United! Shown below, for instance, are a few of the precision-engineered, precision-made United parts: 1 master cylinder, 2 wheel cylinder, 3 hydraulic brake hose, 4 stop-lite switches, 5 service manual, 6 brake cable, 7 wheel cylinder kit 8 master cylinder kit . . . As for service, you can't beat your NAPA Jobber! Ask him to show you United's complete line, and ask, too, for your copy of United's useful brake service manual! United Parts Mfg. Co., 1250 West Van Buren Street, Chicago 7, Illinois.
UNITED
HYDRAULIC BRAKE PARTS • BRAKE CABLES • SPEEDOMETER CABLES • FUEL PUMP PARTS

"Percentage of Gasolene Wasted"

If this is important to your fleet operation then write Cities Service today for a free demonstration analysis.

All gasolene-powered vehicles benefit by this unique Cities Service Power Prover test.

Here's how this helpful service benefits you: The exclusive Cities Service Power Prover is an important part of the Cities Service "Clean Engine" Program. The unique instrument detects poor combustion. It tells you quickly and accurately the percentage of gasolene wasted by each vehicle in your fleet. Necessary adjustments are then made to reduce this waste.

Scores of major fleet operators are profiting from this unique service. Their typical maintenance schedule includes: first, crankcase drains of all fleet units. Next Cisco Solvent is used to flush out trouble making deposits. Then the crankcase is refilled with Cisco 800 Series Motor Oil. Now comes the Power Prover test to check the exact efficiency of combustion. This process is repeated at every other oil change period.

The results of this "clean engine" maintenance program have been lower operating costs per mile . . . lower gasolene consumption and reduced maintenance and repair expense. Put this program to work on your fleet. Use coupon below.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

CITIES SERVICE OIL COMPANY
Sixty Wall Tower, Room 625, New York City, N. Y.

Please send me without obligation information about your "Clean Engine" Program and the exclusive Power Prover.

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City_____ State_____

Now!
ON DISPLAY
SEE THEM ALL!
AT YOUR WILLIAMS DISTRIBUTOR
Buy your tools and wrenches from these displays where you can make selections to fit your specific needs quickly and easily.
Write for Catalog A-50
WILLIAMS
J. H. WILLIAMS & CO., AUTOMOTIVE DIVISION, BUFFALO 7, NEW YORK

ELECTRICAL VALVE CATALOG, describes in detail, with wiring diagrams and dimensional drawings, the Bellows' solenoid air-operated valve. A copy will be sent upon request to The Bellows Co., Akron, Ohio.

RAINWEAR, two new catalogs describing a line of industrial raincoats and rubber work suits including those made of Koroseal. Available upon request from The B. F. Goodrich Co., Akron, Ohio.

THE PUROLATOR SALESMAKER, the first issue of the new Time-size quarterly features articles on the new Spanish Talgo train; the Northrup Flying Wing, world's most powerful airplane, and a recent Gulf Oil test proving the need for 1,000-mile oil change intervals. Purolator Products, Inc., Rahway, N. J.

STAINLESS STEEL FOR HEAT RESISTANCE, a new 12-page booklet presents a concise discussion of the properties of stainless steel and outlines the proper grades to use for parts subjected to heat. Write Armco Steel Corp., Middletown, Ohio.

HALLOWELL CATALOGS No. 704, 718, 721, describe Posture stools and chairs, "700" steel platform trucks and steel foreman's desks respectively. These catalogs may be obtained by writing Standard Pressed Steel Co., Jenkintown, Pa.

NATIONAL FACT BOOK, a new, handy, up-to-date collection of 70 official basic economic tables in one pocket-size, loose-leaf volume. Facts and figures are culled from Government sources and kept up-to-date by semi-monthly revisions made by NAM's Research Dept. and revisions are sent to all subscribers. Initial subscription is $15.00 with renewal of $5.00 annually to cover cost of refill service. Address orders to the NAM, New York, N. Y.

MECHANICAL AND HYDRAULIC JACKS are included in a 32-page letter-file size catalog, known as No. 50. It carries full details of the 123 models of ratchet lowering, hydraulic and screw type jacks in the Simplex line. Available upon request from Templeton, Kenly & Co., Chicago, Ill.

MERCURY AUTOMATIC CLUTCHES are described and illustrated in three new bulletins. Bulletin 216 describes the Mercury clutch in general; Bulletin 217 deals with Mercury automatic clutches to gasoline engines; and Bulletin 218 covers electric motor installations. Write to Automatic Steel Products, Inc., Canton, Ohio.

MACHINE SHOP TIME SAVERS, an 8-page folder describing machine tool accessories is available from the J & S Tool Co., East Orange, N. J.

BRAKE PARTS CATALOG, containing descriptions of a complete line of new master wheel cylinders, and interchangeability listings, cross index on car manufacturers'

(TURN TO PAGE 154, PLEASE)

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CENTRAL
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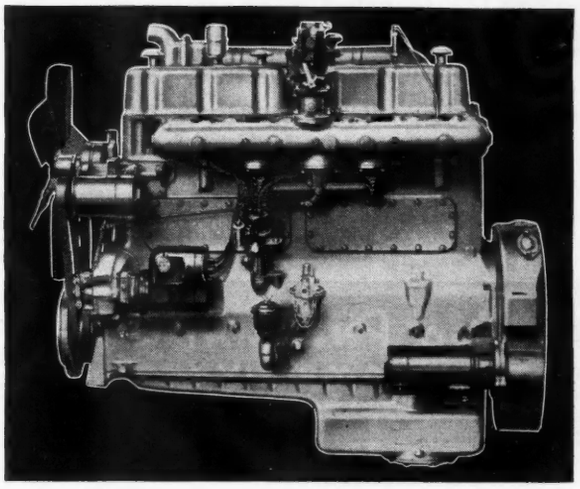
THE GENERAL FIRE TRUCK CORP.

WAUKESHA ENGINES

WAUKESHA MOTOR COMPANY • WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES



WAUKESHA 145-GKB HIGH OUTPUT FIRE ENGINE SPECIAL
Six cylinders, 5¼-in. bore x 6-in. stroke, 779 cu. in. displ., 240 hp. at 2400 rpm.

SEND FOR BULLETIN No. 1402 DESCRIBING THIS ENGINE
Also built in other sizes ranging from 96 hp. to 240 hp.

Fleetman's Library

Continued from Page 152

part numbers, diagrams and descriptions of brake systems. Can be obtained by writing Mercury Brake Products Co., Chicago, Ill.

CERTIFIED JOB STUDY, an 8-page booklet based on efficient materials handling, outlines results of applying mass handling methods in reducing handling costs. Copies are available upon request to Towmotor Corp., Cleveland, Ohio.

THE INEXPENSIVE WAY TO PROTECT PERISHABLES PRODUCTS IN TRANSIT, a 12-page booklet explains the Air Induction System of non-mechanical truck refrigerating and air conditioning system. Illustrated with photographs and drawings, it also contains specifications for five models. To obtain a copy, write Air Induction Corp., New York, N. Y.

NATIONAL FORUM ON TRUCKING INDUSTRIAL RELATIONS, a 146-page book containing the proceedings of the first annual forum sponsored by the ATA and held in Washington in Jan., may be obtained for $2.75 from the Industrial Relations Dept., American Trucking Associations, Inc., Washington, D. C.

INVESTMENT FOR JOBS, a 36-page booklet answers questions such as: What is the employment outlook? How many jobs must be created in the next few years? What is meant by venture and risk capital? Send 25 cents to Economic Research Dept., Chamber of Commerce of USA, Washington, D. C.

STRAIGHTENING, BALANCING AND ALIGNING CHARTS, containing the king pin inclination, caster, camber and toe-in specifications for all cars, trucks and buses can be obtained for $1.00 from the Bee Line Co., Davenport, Iowa.

JOB STUDY No. 93, a 4-page folder outlining in detail handling methods with fork-lift trucks which resulted in savings for one warehouse operation, is available on request to Towmotor Corp., Cleveland, Ohio.

MEEHANITE SHAPES AND FORMS, a 4-page folder illustrates line of bar stock, bushings, gear blanks, flats, angles, etc. Copy will be sent upon request to Motor & Metals, Inc., New York, N. Y.

B. F. GOODRICH IN ACTION, a 25-page picture booklet, describes with many photographs the products used in transportation, industry, farming, in the home and in the office. Write B. F. Goodrich Co., Akron, Ohio.

HERCULES STEEL PRODUCTS BULLETINS, eight colorful bulletins describing cement spreader, coal-handling power chute, medium duty hoist and dump bodies, hydraulic hoist, envelope stuffer, split-shaft power take-off, tire and tool pack dump body, and fertilizer and lime spreader, can be secured by writing Hercules Steel Products Corp., Galion, Ohio.

COMPRESSOR BULLETIN, a 16-page brochure describing the WL-80 UNITAIR compressors, includes an easy-to-use selector chart plus drawings and photographs of operating features. Write Joy Mfg. Co., Pittsburgh, Pa.

CLUTCH HEAD SCREW, a brochure on screw application in assembly line operation. United Screw and Bolt Corp., Chicago 8, Ill.

Compactness of angle head permits nut running with minimum clearance.

You can reach any nut on car or truck

The CP-770 is a handy wrench to carry on service truck or tractor for wheel changing and other road service work. In an emergency it can be operated from the air brake supply line. For regular work, a thirty gallon auxiliary air tank is recommended.

The detachable angle head of the CP-770 Controllable Impact Wrench makes close-quarter work easy. This powerful wrench removes or applies any bolt, nut or screw up to 1″ bolt size in one-fifth the time ordinarily required.

The complete CP line of Impact Wrenches also includes the CP-730, capacity to 7/16″ bolt size, and the CP-750, capacity to 5/8″ bolt size, both equipped with detachable angle heads.

The CP-365, capacity to 1¼″ bolt size, is available in straight and angle head models.

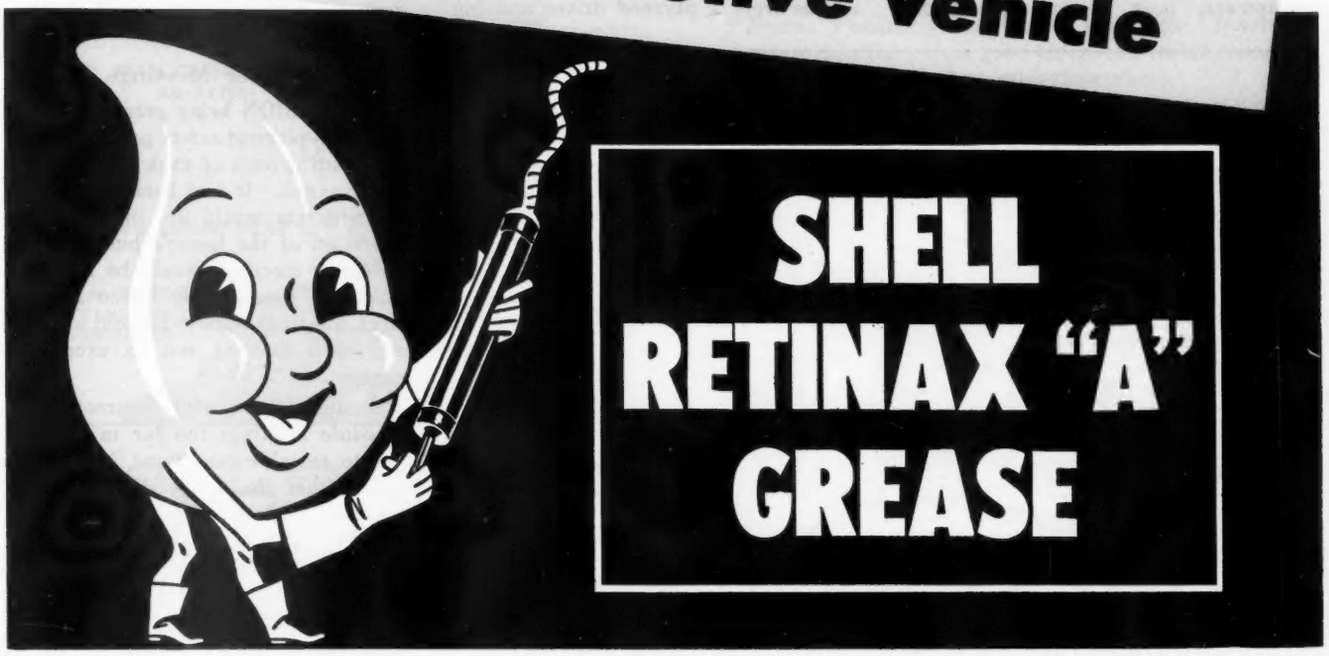
Write for full information.

CHICAGO PNEUMATIC TOOL COMPANY
General Offices: 8 East 44th Street, New York 17, N. Y.

AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS
AIR IMPACT WRENCHES • AIR COMPRESSORS • PNEU-DRAULIC PUMPS

"Could you tell me how to get to Elm Street, Madame?"

Now...One Grease gives better service at all grease-lubricated points on any automotive vehicle



5 BIG SAVINGS FOR FLEET OWNERS:

1. Lower consumption. Users report up to 50% savings in the amount of grease required per "grease job."

2. Minimum inventory. Shell Retinax "A" replaces 4 separate greases.

3. No costly errors are possible. Operators cannot apply wrong grease.

4. Quicker servicing is achieved because there is no time wasted changing guns.

5. Minimum equipment required since multiple guns and dispensers are eliminated.

COMBINES ALL THESE IMPORTANT ADVANTAGES:

1. Will not fail in wheel bearings. Until the discovery of Shell Retinax "A", no grease would pass both the high temperature and the water modifications of the CRC Wheel Bearing Test. Shell Retinax "A" does pass and is classified as "Superior" on both counts.

2. Stays longer in chassis fittings because of high mechanical stability, and high resistance to water.

3. An ideal water pump grease because of its high melting point and resistance to water.

4. Ideal for universal joints; high mechanical stability, high melting point, high water resistance.

Shell-developed Grease Test duplicates extreme service conditions

THE SHELL ROLL TEST is a severe test for mechanical stability... so severe that even premium greases break down and become worthless.

This Shell Test not only fails to break down Shell Retinax "A" Grease . . . it proves conclusively that Retinax "A" lasts many times longer than any other grease available today for automotive use. (We'll be glad to send you complete details of this test.)

SHELL OIL COMPANY

50 West 50th St., New York 20, N. Y. • 100 Bush St., San Francisco 6, California

SHELL®

SHELL RETINAX "A" GREASE

Selling Safety Cuts Accidents

Continued from Page 64

handling accident reports, and resulting time spent in handling people that had been involved in these accidents. Economic loss of time through subsequent litigation.

(c) Probable increase in insurance rates, resulting in higher lease or rental rates due to having a poor accident record.

(d) Examples of how damaged equipment, poor driver appearance, shiftless driving habits, and lack of driver road courtesy affected the public and completely nullified the efforts of his expensive advertising.

(e) Emphasize the fact that management including California Truck Rental Co., has a distinct responsibility to the drivers and the general public in regard to highway safety.

(f) Additional benefits that would accrue from a planned driver training program, with which we would be glad to assist by furnishing the technical know-how, and acting in the role of consultant.

(g) Summarizing how all of these factors, together with corrective action through a planned safety program, would be good business; lead to better public relations; increase the advertising value of the vehicles that cost good money to paint and letter to lessee specifications; reduce the needless economic loss caused by traffic accidents; cut operating expenses; and, finally, make the highways safe for all concerned.

Driver Meetings

PERMISSION being granted to carry on the planned safety program, meetings with drivers of each lessee had to be arranged. It had been agreed that the program would not interfere with operation of the lessee's business, that all driver meetings would be held at a time and date set by lessee management, meetings were to be held monthly, and each meeting not to exceed 30 minutes.

Because it seemed impractical to schedule meetings too far in advance, due to variable conditions, it also was agreed that the safety director would telephone lessee management one week in advance, to schedule the next meeting. These meetings are conducted separately with the drivers of the individual lessees, and on their premises. Past experience has indicated this is the only practical method of conducting such discussions in the truck leasing field. It is impossible to schedule group meetings with drivers of more than one lessee, as the time element, distance and variable conditions existing in the different types of businesses prohibit any coordination in this respect.

Most meetings are scheduled for early in the morning, at the drivers' starting time. Second preference is during the afternoon, on days when drivers finish earlier than usual. Third, immediately after the lunch period. Fourth, one half hour before quitting time, in the late afternoon.

It is recognized that the best practical time to conduct a safety meeting is early in the morning. Drivers' minds are fresh and alert at this time, and they are more receptive to the discussion at hand.

Occasionally, a meeting is scheduled for one half hour before quitting time but, due to unforseen delays enroute, drivers are late returning. Under such circumstances, the meeting is cancelled by the safety director and rescheduled

(TURN TO PAGE 158, PLEASE)

Just off the press!

A new arc welding machine catalog — Welders for AC, DC, gas engine operation—capacities of 100 to 500 amperes.

Here, at last, is a helpful booklet that gives you complete data on all Airco arc welders — the machines with the stinger that penetrates. Divided into easy-to-read sections, you can quickly determine the welder suited to your production or maintenance job.

This booklet is handy, useful, bringing you a wealth of information covering design, distinctive features, specifications, power requirements, electrical characteristics, and outstanding operational qualities of each welder in the entire Airco line.

To give you some idea of the amount of material covered by this definitive booklet, here are a few of the many welders covered.

- "Bumblebee" and MCT — Transformer AC Arc Welding Machines
- "Hornet" 36A and "Wasp" — DC Arc Welding Machines
- "Yellow Jacket" Gas-Engine Driven Arc Welders
- Customer-Assembled Gas Engine Sets

See this booklet yourself . . . send for it today. Just fill in the coupon below for your free copy.

AIRCO **AIR REDUCTION**

Air Reduction Sales Company · Air Reduction Magnolia Company · Air Reduction Pacific Company
Divisions of Air Reduction Company, Incorporated
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Send for this FREE catalog today!

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60 East 42nd St., New York 17, N. Y.
Please send me a copy of your NEW Arc Welding Machine Catalog No. 8.

Name_____
Firm_____
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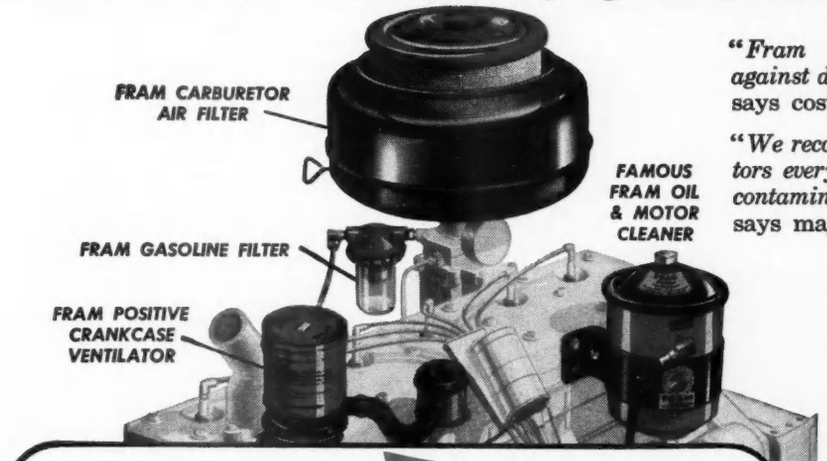
City_____ State_____

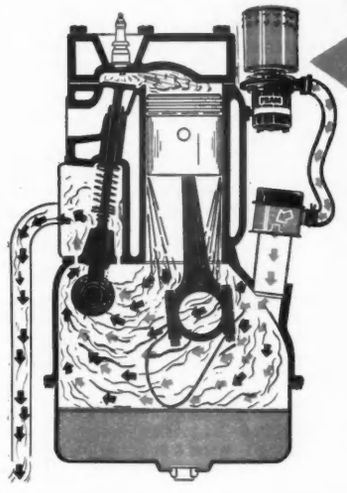
Fleet Operators, Oil Experts say—

"FRAM POSITIVE CRANKCASE VENTILATOR LICKS OIL CONTAMINATION"



"Fram Positive Crankcase Ventilator insures against dilution . . . a good safeguard in all cases," says cost-minded fleet superintendent.

"We recommend Fram Positive Crankcase Ventilators every time on problems involving excessive oil contamination and low temperature deposits," says major oil company executive.



How the FRAM Positive Crankcase Ventilator *Stops Sludge*

Dust-laden air is filtered clean as it passes through FRAM-TEX filtering media in Fram Crankcase Air Filter. Electrically-driven blower starts the moment ignition switch is turned on. Provides a constant, uniform flow of clean air regardless of engine or vehicle speed. Flexible hose connects unit to special oil filler cap assembly. Clean air circulates through crankcase, sealing against entry of dirt from all points. Ventilation carries sludge-and-acid-forming "blow-by" fumes and vapors out through road draft tube before they contaminate the oil.

THESE MEN have tested the Fram Positive Crankcase Ventilator and proved it's one of the greatest cost-cutting engine-savers ever offered to fleets. Compact, economical and it *really licks sludge*. Indispensable in cases of contamination and dilution due to low-speed, cold engine and stop-and-go driving. Saves engines, oil and oil filter cartridges by removing corrosive blow-by gases as they form.

But Fram offers you more! You can get Fram Filters for every fleet job . . . to filter oil, air or fuel on cars, trucks or buses. Fram offers you top-quality replacement cartridges for every oil filter made. You can get Fram Complete Engine Protection . . . four great filters (as shown above, left) that seal out abrasives at every vital point, remove corrosives where and when they form.

AND NOW, Fram offers you the amazing new Lubri-Graf for an instant visual check on oil, engine and cartridge condition. Saves you money on oil and cartridge changes. Users report reduced maintenance costs—increased engine life. Test it FREE! Send coupon now.

For Complete Engine Protection

FRAM

OIL - AIR - FUEL

FILTERS

MAIL COUPON NOW

for FREE FRAM Lubri-Graf!

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Please send me FREE Fram Lubri-Graf.

Name .....

Company .....

Address .....

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No. of vehicles in fleet .....

We regularly purchase through .....

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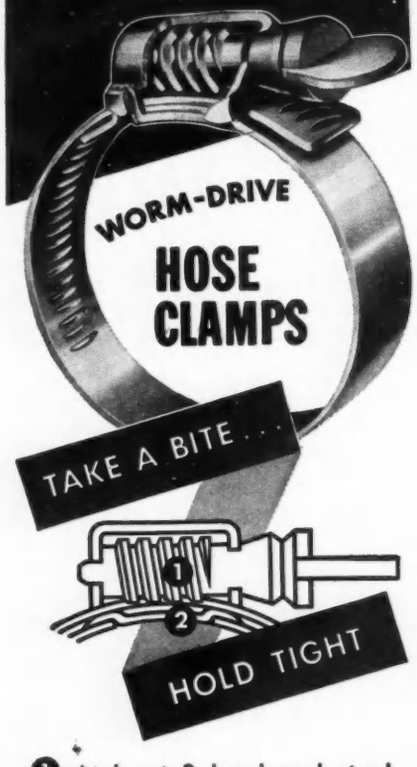
"Aero-Seal"



❶ At least 3 hardened steel threads always engaged in worm drive action in slotted band.

Clamp unscrews easily but will never work loose.

❷ Worm-threads cannot touch or damage hose—curved saddle assures uniform sealing pressure around complete circumference.

- Long Life—use again and again
- Integral construction — no parts to lose
- Corrosion resistant—cadmium plated or stainless steel
- Two types—screwdriver slot or thumb grip

WRITE TODAY for **FREE SAMPLE**

ANOTHER BREEZE MARK PRODUCT

"Aero-Seal"®
HOSE CLAMPS

BREEZE CORPORATIONS, INC.
45 South Sixth Street, Newark, N. J.

Selling Safety

Continued from Page 156

for another day. It is better to handle it in this manner than hold one or two drivers for a while in feeling that the other drivers will be returning any minute, and then cancel the meeting anyway.

Wasting time that drivers could use in getting home is not good for morale. They are quick to recognize the safety director who has their welfare in mind. They will look forward to future meetings when they understand that their time is not going to be wasted. One other important fact is that, inasmuch as these driver meetings are held during company time, the safety director should make it a point always to be at the appointed meeting place on time.

Initial Topics

THE first meetings were, more or less, get-acquainted affairs. Lessee management introduced the safety director. A brief explanation was made as to why such a program was necessary, the fleet accident record, mounting costs of insurance due high accident frequency, and policy cancellation probability if the high accident frequency were to continue.

Mention was made of the tremendous public relations problem of the trucking industry. The advertising value of trucks to their own business was stressed, especially the fact that one discourteous act to another motorist could do more harm to their business than thousands of dollars of advertising could recoup. Drivers were informed that they could bring up any pertinent problems for help and guidance.

Bulletin Boards Used

A SEPARATE bulletin board, large enough to contain posters, charts and other literature was set up. In some cases, wall space was painted to attract attention. Where this was not practical, bulletin boards were made up and located where the drivers would see them.

The first item posted on these boards were "Drivers Safety Record Charts." These charts are fairly large in size; having a column for listing the names of the drivers, and the balance divided into the twelve smaller columns, one

(TURN TO PAGE 160, PLEASE)

JOBSERVATION

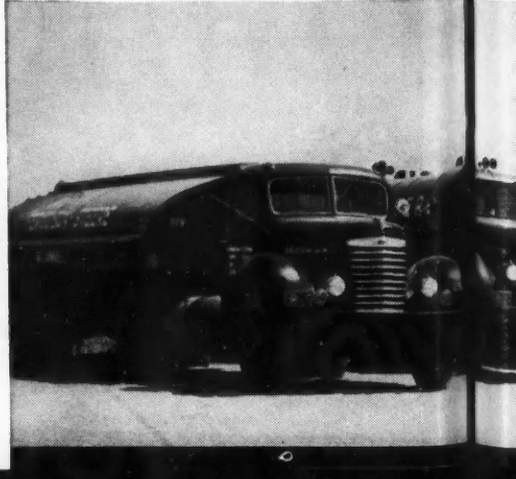
A winner never quits and a quitter never wins

Budd Wheel Distributors
provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Cruse-Crawford Wheel & Rim Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Wheel & Rim Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robblees', Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robblees', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robblees', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.

EXPORT
CLEVELAND—C. O. Brandes, Inc.

CANADA
CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—General Automobile Equipment Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.



Seeing is Believing!

• The Ferguson-Steere Transport Company, Texas and New Mexico Petroleum carriers, always specify Budd wheels when buying new equipment. When this equipment is not available as specified, they make the change-over themselves. Their decision to use Budd wheels with wide base rims on all of their 50 tractor and tandem units, was not made hastily.

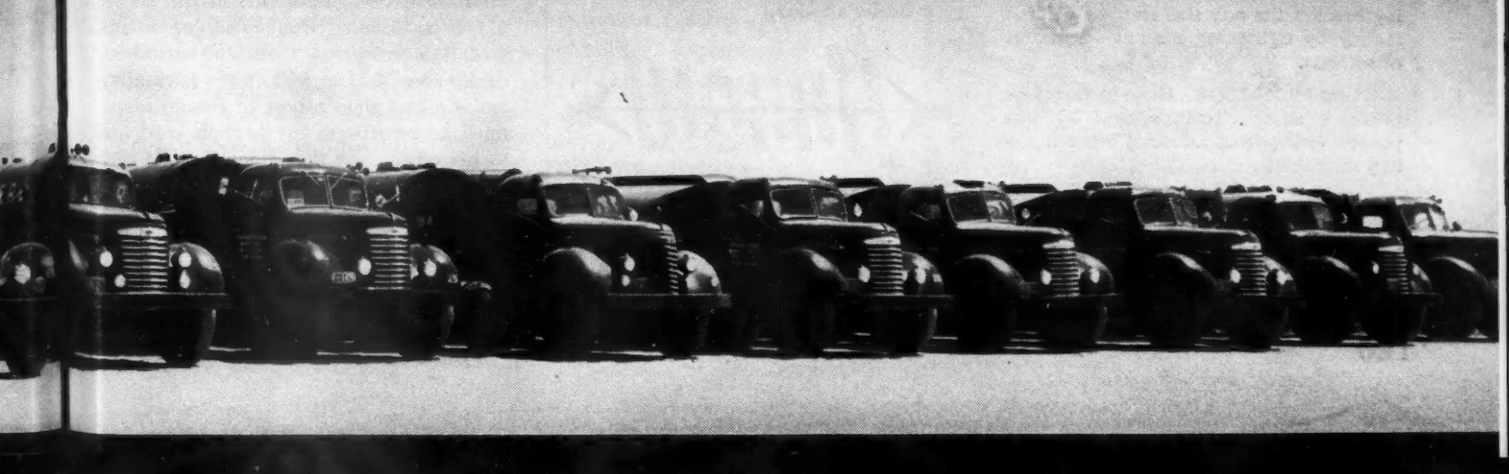
• "First," reports Mr. R. E. Walker, Ferguson-Steere district manager, to Arch Weeks of Southwest Wheel Inc., Budd distributors in Texas and Oklahoma, "we purchased one trailer equipped with Budd wheels. Its operation was carefully studied."

• Results showed: 1. Tire mileage increased by 15 per cent. 2. Tires showed even, uniform wear. 3. Wheels were self-aligning. 4. Flats were changed easier, faster. 5. Loose wheel bearings were noticed at once. 6. Wheel wobble was completely eliminated.

• Today the entire Ferguson-Steere fleet rolls on Budd wheels, operating over rugged terrain . . . on roads that run from the 'best to the worst' . . . hauling oil from the fields to refineries, and from refineries to wholesale distributors.

• The many experiences which have influenced fleet operators to change-over to Budd wheels, makes interesting reading. If you have a problem that the right wheels for the job can solve, why not call on the Budd wheel representative nearest you. His name is listed in the adjoining column. The Budd Company, Detroit 14.

Look for this label (in red, blue and gold) on the rim of all genuine Budd Wheels



Selling Safety

Continued from Page 158

for each month of the year. The charts stirred up much interest particularly with their square-shaped gummed labels, on which appears the caricature of a policeman. A color scheme is followed to indicate responsibility of an accident, and the fact of the policeman on different colored labels is appropriate to the responsibility of the accident. To some, charts of this type appear to be elementary, but the psychological effect created by instilling personal pride when drivers compare records was gratifying.

Next, we used a large safety poster, furnished each month by one of the insurance companies. This poster attracts attention by its color and vividness. The subject is of serious nature and based on actual everyday occurrences, drawn in a humorous vein to catch the eye of the driver.

Past experience having proved that fully one-third of all accidents were of the back-up type, the third bulletin board item was a poster relating to accidents of this nature. Constant use and variance of these posters, appropriate slogans and personal stressing to individual drivers has reduced this figure from 30 per cent to as low as six per cent.

Other bulletin board literature and material appropriate to the safety program is used and changed monthly.

Conduct at Accident

PROPER driver conduct at the scene of an accident is considered very important, as are securing of all information, and making out accident reports properly. This subject was important enough to take up at the second meeting. Thereafter, it was stressed continually.

Two meetings a year covering this particular subject are not too many. One topic that required immediate correction was training drivers not to admit liability at the scene of the accident. This fact had to be stressed strongly as well as frequently. To facilitate correct procedure in handling accident reports, the form shown in Fig. 3 was made up and distributed to the lessees.

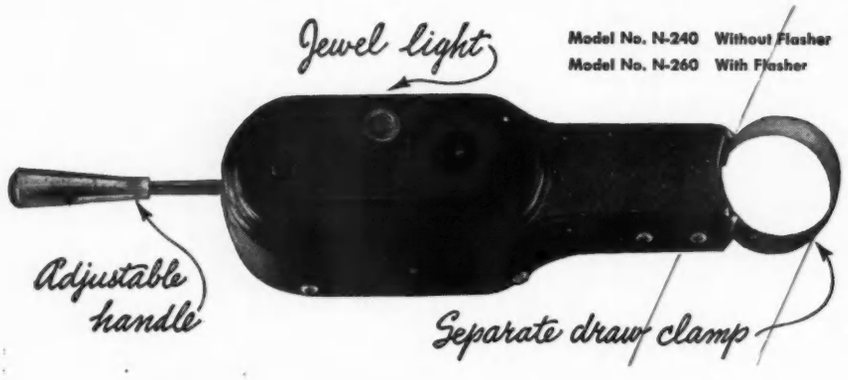
As a reminder to the driver, each vehicle contains one dashboard decal, placed where the driver will readily see it. This decal is four by two inches in size, bright yellow in color, and containing, in bright red letters, the following message: "In case of accident, immediately call California Truck Rental Company—Ask for accident desk," and listing the telephone numbers of the branch offices.

All drivers have been educated to follow these instructions. This procedure is followed so the company can immediately ascertain whether there is personal injury, and learn the extent of damage caused by the accident. This enables us to determine what action to take by asking the driver a few simple questions and, thus, remove any decisions from his hands. In cases of personal injury or extensive property damage, an adjuster can be dispatched to the scene of the accident with the least possible delay.

Each vehicle carries, in the dash compartment, one standard accident report form on which the driver can record all information obtainable at the scene of an accident. Depending upon instructions received from the accident desk, the driver will not, normally, make a complete report of the accident until he returns to the branch yard, or to his office. At that time, he fills out the required number of forms, in accordance with the instructions outlined in Fig. 3, and his office will mail them with the least practical delay.

(TURN TO PAGE 162, PLEASE)

For a Better Switch... Better Switch to ARROW



Check the features of the new Arrow Directional Signal Switch against those of any switch on the market, then switch to Arrow for safe, sure protection . . . for a better switch at a lower price.

POSITIVE PROOF INDICATION. One feature alone makes it worth the low cost. That's a tell-tale jewel light that tells you whether your signal lights are working—not just the switch. If one or more of your lights are out, or there is a break in the lamp circuit, the jewel light will indicate that the system is not functioning perfectly.

FINGER-TIP CONTROL. Adjustable handle can be moved in and out to provide finger-tip control regardless of the size of the steering wheel.

EASE OF INSTALLATION. Separate mounting bracket fits any size steering column merely by tightening a screw—a matter of seconds.

BUILT-IN PROTECTION. Built-in line fuse prevents short circuit caused by improper wiring from affecting other lights in your vehicle.

DEPENDABILITY. Tested for over 175,000 cycles.

ATTRACTIVE, MODERN DESIGN. Compact, good-looking.

The new Arrow switch is available for 6- or 12-volt systems, with standard or with stop-light-proof wiring-harness, with or without a flasher mounted in the switch case, and for a 2-light or 4-light hook-up. It can be used in combination with any Arrow Signal Lights or with any system now in use.

See the amazing new Arrow switch at your dealer's today.

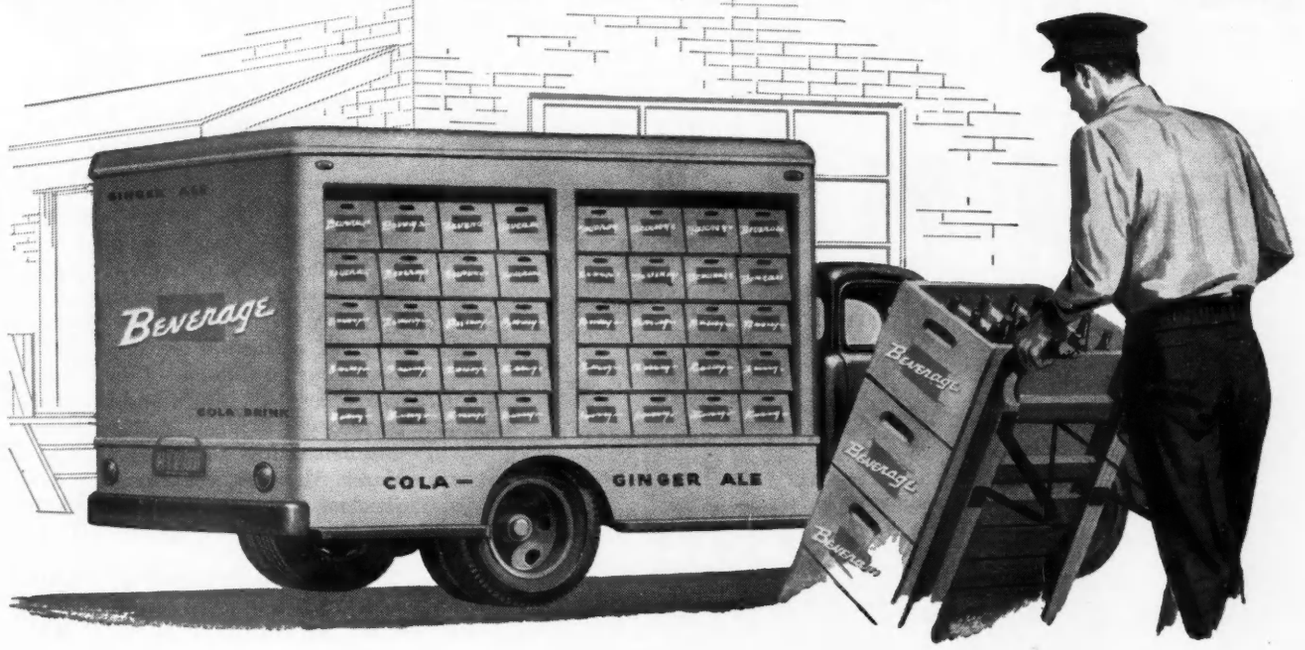
ARROW

SAFETY AFTER DARK

ARROW SAFETY DEVICE COMPANY • MOUNT HOLLY, NEW JERSEY

TURN MORE DEAD WEIGHT INTO PAYING FREIGHT WITH—

MAGNESIUM



These Magnesium Truck Bodies Carry 10% Greater Payload!

To increase the load his trucks could carry, a midwestern beverage manufacturer switched to magnesium truck bodies. Prior to this, gross weight restrictions had limited him to 294 cases per truck. The weight eliminated by magnesium made it possible to carry 324 cases, a 10% increase in payload!

Payload increases like this are common when magnesium is used. It's by far the world's lightest structural metal, a full one-third lighter than any other.

Even if your loads are not governed by weight restrictions, it's profitable to use magnesium bodies. Lightweight magnesium bodies mean better gas and tire mileage, and lower maintenance costs. In many states, license fees are significantly lower. Whether your loads are heavy or light, it will pay you to investigate magnesium truck bodies.

The Lightest Truck Bodies Are Made of Magnesium

For more information about magnesium truck bodies, or the names of body shops in your vicinity, call the nearest Dow sales office, or write Dept. MG-91 in Midland.

Magnesium Division

THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Atlanta
Cleveland • Detroit • Chicago • St. Louis • Houston
San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada

Selling Safety

Continued from Page 160

When the four copies of the accident report are received by the accident desk, the report is given a file number. The first copy immediately is mailed to the insurance carrier, the second copy indexed and placed in a master accident file, the third placed in an alphabetical file pertaining to the lessee, and the fourth copy put in an alphabetical file for use by the safety director.

This fourth copy was of great help. The safety director took it with him whenever necessary. The office file should never be removed from the office.

Accident Frequency Drops

FIG. 1 shows the total accident record of the California Truck Rental Co. for the years 1948, 1949, and part of 1950. It combines the records of the Oakland and Los Angeles Fleets. The following table enlarges upon the graph and shows how the accident frequency has been reduced on a mileage basis. The figures represent the number of accidents per 100,000 miles.

	OAKLAND FLEET			LOS ANGELES FLEET		
	1948	1949	1950	1948	1949	1950
Jan.	7.03	7.92	10.32	12.41	9.52	5.10
Feb.	11.21	5.61	4.03	17.67	5.65	8.05
Mar.	12.01	10.91	2.14	16.22	6.82	5.05
Apr.	9.53	4.12	....	11.63	5.65	....
May	7.50	3.67	....	8.78	6.12	....
June	3.62	6.35	....	11.66	6.93	....
July	6.49	6.06	....	6.30	5.93	....
Aug.	9.73	9.14	....	6.80	4.91	....
Sep.	6.89	1.53	....	9.69	5.78	....
Oct.	5.22	.73	....	9.37	4.60	....
Nov.	12.43	6.05	....	10.20	5.23	....
Dec.	11.06	4.56	....	10.34	5.21	....

Highly significant is the accident reduction accomplished during April, 1948, when the safety program was started, and the increase during November and December of 1948, when, through no fault of the company, safety meetings were cancelled. The program was revised and placed in full operation during the latter part of December, 1948, and accident frequency has steadily declined since.

That the safety program also appears to be paying off in dollars and cents is shown by the fact that as of September 30, 1948, a deficit of nearly $11,000 had been incurred with one of the insurance companies, due to the high accident frequency. Without change in rate, this deficit was wiped out and as of March 31, 1949, the company had a dividend credit in the amount of $47.20.

Accident Analysis and Control

FIG. 4 is a form that was developed to record analysis results of the entire accident record file. The illustration is intended to show only the type of form used. The figures for 1948 are for the Los Angeles area only. The 1949 figures combine both Los Angeles and Oakland. This gives an interesting comparison. During 1949, the combined accident total of Los Angeles and Oakland is much less than that for Los Angeles alone in 1948.

The purpose of such a form is to permit a constant check of the type of accidents, from month to month, so that immediate steps can be taken to combat the trend toward a particular type of accident. Previous experience indicated that constant stressing of one type of accident will practically eliminate it, but, if not watched, the trend

(TURN TO PAGE 164, PLEASE)

GUNITE

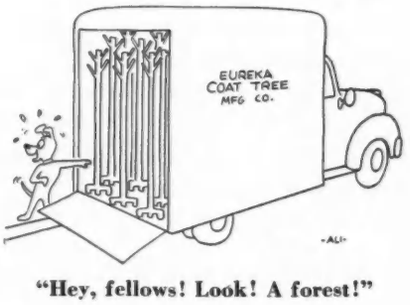
BRAKE DRUMS

FEATURE NO FLEX

There is no flex on the cam and anchor sides of GUNITE Rib-Type Brake Drums. This means that linings wear evenly, last longer, brake efficiently. Also, burned spots are eliminated and drums last longer, require less frequent refinishing. GUNITES *cost less* in the long run *because* they give better service, require less attention. *Breakage is eliminated* by reduction of flex and by the high rate of heat conduction. Try *GUNITES* on your toughest runs. Let them prove themselves! *Buy GUNITES — for better braking!*

MADE BY
GUNITE FOUNDRIES
ROCKFORD, ILLINOIS

GUNITE BRAKE DRUMS . . . FOR TRUCKS, TRACTORS, TRAILERS *and* BUSES



"Hey, fellows! Look! A forest!"

". . funny how such a little thing can make such a *BIG* difference"

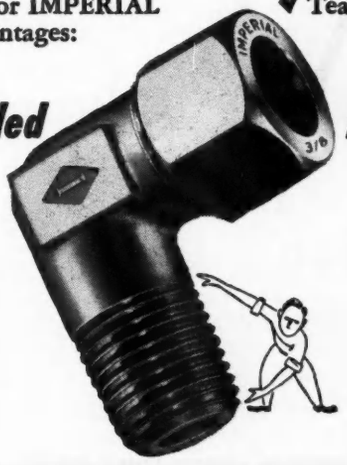
Tubing size marked on nut on IMPERIAL TUBE FITTINGS*

Sure, it's a little thing but it's amazing how this new convenience developed by Imperial — traditional leaders in tube fittings — helps make tubing connection work simple. It's one of the many EXTRAS which build preference for IMPERIAL TUBE FITTINGS. Note these advantages:

- ✔Identifies fittings quickly
- ✔Makes it much easier to find needed fittings
- ✔Replacements can be made faster
- ✔Fittings are easier to sort and check
- ✔Teaches men to recognize fitting sizes

*Both compression and flare types

Two other EXTRAS provided by Imperial Tube Fittings —



FITTINGS ARE *FORGED**

Because forged fittings have *Greater Strength and Toughness* they stand up better under pressure, vibration and shock. Their denser grain structure means no chance of blow holes or seepage. Their greater uniformity means quicker, easier assembly.

*Elbow and Tee Bodies.

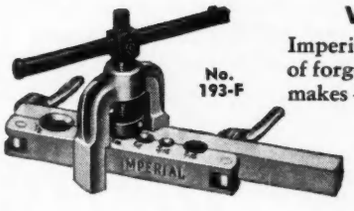
LONG DRYSEAL PIPE THREADS

Full Length Dryseal American National Standard tapered pipe threads are provided on all pipe ends. These threads are longer than former standards on sizes ¼" and over. They are a definite improvement in pipe threads, give extra assurance of tight joints, and are especially valuable in providing for additional takeup when reconnection is necessary.

IMPERIAL TUBE WORKING TOOLS *help you get jobs done quicker*

HI-DUTY TUBE CUTTER

Free-wheeling ball bearing action makes cutting easier, faster. Cuts hard or soft tubing. Roller type with flare cut-off groove. Makes clean, right angle cuts. Retractable reamer. **No. 274-F** . . . for ⅛" to 1" O.D. tubing.....**$3.30**



FLARING TOOL WITH SLIP-ON-YOKE

Imperial's exclusive quick slip-on yoke of forged steel speeds flaring. **No. 193-F** makes 45° flares on 3/16", 1/4", 5/16", 3/8", 7/16", 1/2" O.D. copper, brass or aluminum tubing **$3.60**

Ask for Catalog No. 124-B

THE IMPERIAL BRASS MFG. CO., 1209 West Harrison Street, Chicago 7, Ill.

IMPERIAL

Brass Fittings • Shut-Off Valves
Flexible Gas and Oil Lines
Strainers • Tube Working Tools
Service Aids • Barrel Faucets

Selling Safety

Continued from Page 162

will creep in another direction, with the result that the total number of accidents at the end of the month may be the same.

A brief explanation of the classifications used in Fig. 4, pertaining to the different types of accidents, is as follows:

1. STOPPED—Any accident while a vehicle is stopped, but not considered parked.

2. BACKING—Any accident while a vehicle is backing.

3. DRIVING—Any accident while a vehicle is moving straight ahead.

4. TURNING—Any accident while a vehicle is turning into or making exit from driveways, alleys or side streets other than intersection.

5. INTERSECTION — Any accident within an intersection, regardless of direction of travel.

6. REAR END—Any accident where a vehicle strikes the rear end of another vehicle.

7. MECHANICAL FAILURE — Any accident attributable to a direct mechanical failure beyond the control of the driver.

A further breakdown is not needed but for additional analysis at the end of each month and as a matter of record, fleet safety men are referred to an excellent form available from the National Council of Private Motor Truck Owners, Inc, Washington, D. C. It is identified as Form E, entitled, "Vehicle Acciden Analysis Sheet."

Accident Investigation

IT HAS not been necessary to create an Accident Review Board, or similar body, as this safety director makes a personal investigation of all accidents immediately after occurrence. He then makes a personal call on the driver to discuss his accident. In many cases, these discussions are held with a member of lessee management present. The private carriers' association also has an excellent form available, identified as their Form C, entitled "Cause and Prevention of Vehicle Accidents—Supplemental Report." This form is given to the driver following an accident. Its purpose is explained, with the request that he answer the questions truthfully and return it to the safety director. This form simply asks three candid questions of the driver:

1. What do you think were the CAUSES of this accident

2. Just HOW did you contribute to this accident?

3. What would you do NOW to prevent a similar kind of accident?

To date, all drivers involved in accidents have complied with the request to answer the questions honestly. There has not been one case where a driver insisted he was right when all facts of the accident indicated otherwise. Having the drivers answer the questions themselves, helps them through their own self-criticism. This form and discussion between the safety director and driver, therefore, determine to the driver's satisfaction whether he should be marked with a chargeable or non-chargeable accident.

Use Safety Center Services

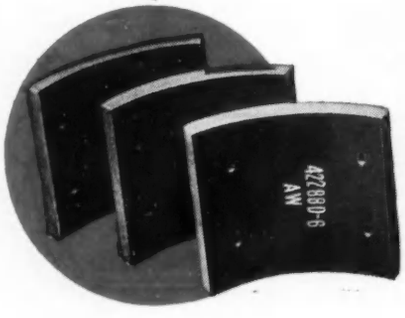
ALL Los Angeles truck-owners, operators, drivers, safety directors and unions are fortunate in having available, to the immediate area, an institution known as the Driver Safety Center, operated jointly by the Motor Truck Association of Southern California and the Western Line Drivers Council. Its purpose is to evaluate drivers' qualities and weaknesses, so that corrective steps can be recommended.

A thorough study is made of each

(TURN TO PAGE 166, PLEASE)

"Just What You'd Expect"

You'd expect Thermoid Heavy Duty Brake Blocks to stand up under high operating temperatures—and have uniform friction combined with exceptionally long life—wouldn't you? Certainly—because Thermoid is known everywhere for leadership in efficient, economical brake maintenance. Thermoid Heavy Duty Brake Blocks are the result of extensive engineering developments and exhaustive field tests. They meet the most rigid state stopping-distance laws. They operate efficiently in wet or slushy conditions. They will not score or wear drums and they provide maximum safe stopping at minimum cost per mile. You *expect* the best—you *get* the best—when you specify *Thermoid*.



Thermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Clutch Facings • Thermoid Precision Process Equipment

Thermoid Company • Trenton, N.J.

New facts from Du Pont help you

Save money on anti-freeze

If you operate light- or medium-duty vehicles equipped with low-opening stats, you can get complete winter protection with standard-priced "ZERONE"

Only the most efficient of all known safe anti-freeze materials is used in making "Zerone."* Used with low-opening thermostats (160°F. or below), on light or medium duty, "Zerone" provides complete, economical anti-freeze protection at average temperatures and altitudes. Evaporation is no problem with "Zerone"—it needs only an occasional check-up. "Zerone's" special *chemical* rust inhibitor retards corrosion—gives long-time, anti-acid protection—and keeps a clean cooling system clean.

For use with heavy-duty vehicles, high-opening stats, and at high altitudes, you're best off with "ZEREX"

"Zerex"* anti-rust anti-freeze is high boiling—one filling lasts all winter in a properly operating cooling system. Made especially for use with high-opening thermostats (above 160°F.), and for heavy-duty service, or at high altitudes. Its special *chemical* inhibitor retards rust and corrosion and gives cooling solutions long-time anti-acid protection. "Zerex" won't attack rubber—seep or creep from a tight cooling system—or clog radiators.

And for greater economy—you can pre-mix "ZERONE" or "ZEREX"

Both "Zerone" and "Zerex" mix completely with water in all proportions . . . their special Du Pont *chemical* rust inhibitor will *not* separate from solution while standing. That means you can make up a "pre-mix" of properly proportioned solution and have it constantly on hand for replacing cooling system losses.

*Reg. U. S. Pat. Off.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Selling Safety

Continued from Page 164

driver's physical condition, inherent driving abilities, and driving knowledge. A report of the findings is submitted to the driver and his employer, but the Safety Center does not attempt to decide whether or not a man should be hired, dismissed or have his job changed. This decision is left entirely up to management, when they review the results.

The California Truck Rental Co. utilizes the services of the Center when a driver's accident record indicates there may be some physical cause. Discovery of some unknown physical deficiency in a driver, when revealed, alerts him to exercise additional care toward eliminating this type of accident in the future.

When the safety director determines, from the driver's accident record, that he should go through the safety center, lessee management must be consulted. The facts of the case are presented in such a manner that they will agree and pay the small charge required.

Safety Department Records

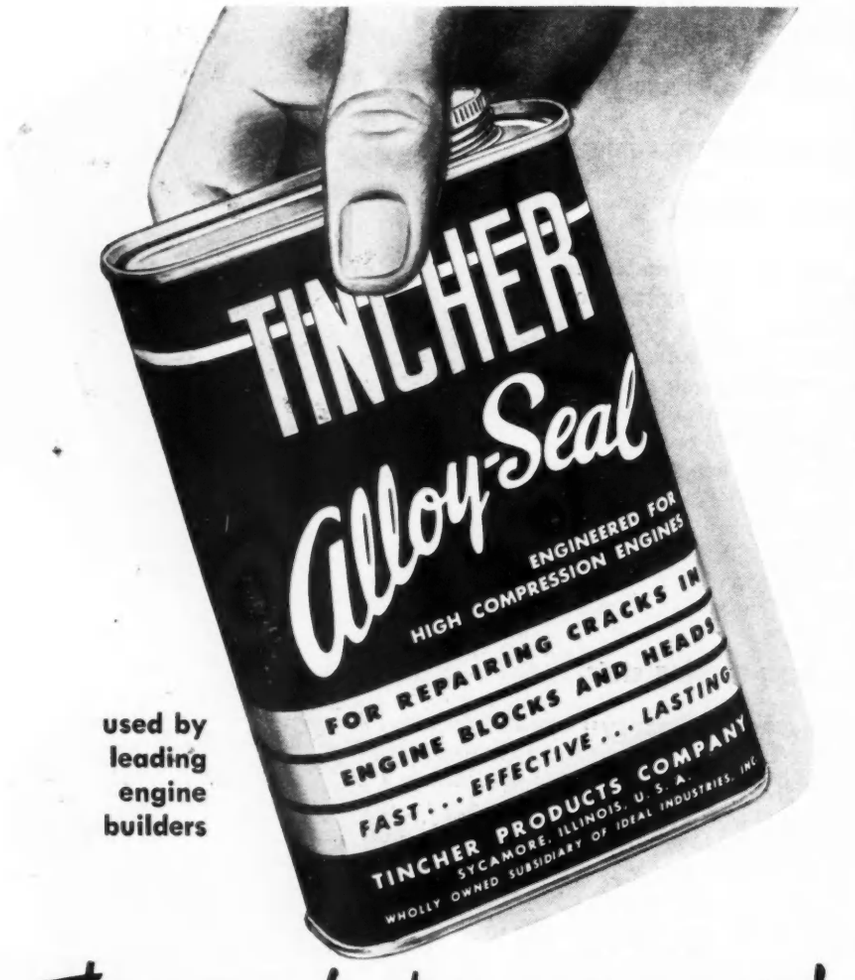
IT IS necessary for the safety director to keep an exact record of his activities. This record should be in chronological order, easy to maintain, and indicate essential facts of the safety program at a glance. The chart indicated in Fig. 5 was developed for this purpose.

Only one chart, large enough to contain all information required over a span of one year, is needed. Listed in the "Lessee" column are names of the lessees in alphabetical order. The "Driver Meetings" column is divided into 12 equal parts, one for each month, for recording the exact date of each meeting.

In the third column, under "Safety Program in Effect," each piece of literature used in the program is referred to as an individual safety program, and is given a number. The legend, indicating the safety program, and identifying it by number, is recorded on the back of this chart. Incidentally, a complete file is kept of these safety programs, one copy of each item being placed in the file.

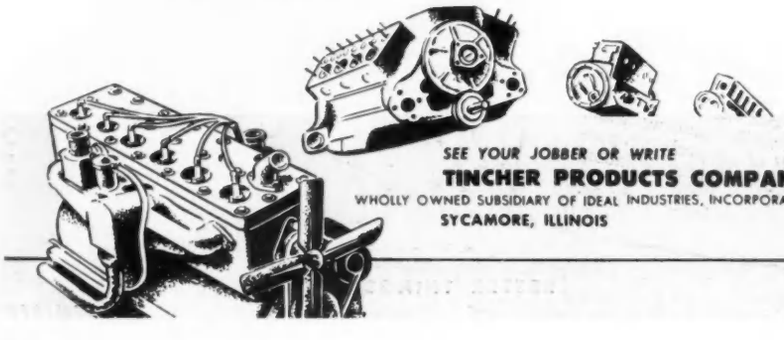
The fourth column is divided equally into 12 sections, one for each month, where current accidents are posted. The fifth, and, last, column is similarly divided and posted with the accident record of the past year. This chart shows the status of all lessees in regard

(TURN TO PAGE 168, PLEASE)


TINCHER
Alloy-Seal
ENGINEERED FOR HIGH COMPRESSION ENGINES
FOR REPAIRING CRACKS IN ENGINE BLOCKS AND HEADS
FAST . . . EFFECTIVE . . . LASTING
TINCHER PRODUCTS COMPANY
SYCAMORE, ILLINOIS, U. S. A.
WHOLLY OWNED SUBSIDIARY OF IDEAL INDUSTRIES, INC.

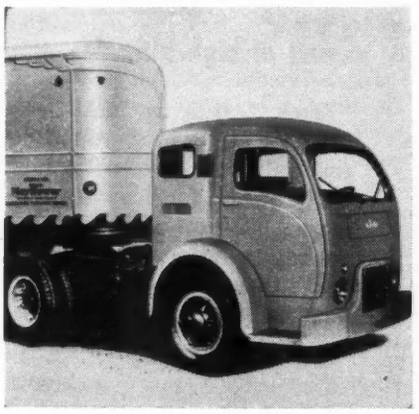
used by leading engine builders

The very best you can use!



SEE YOUR JOBBER OR WRITE
TINCHER PRODUCTS COMPANY
WHOLLY OWNED SUBSIDIARY OF IDEAL INDUSTRIES, INCORPORATED
SYCAMORE, ILLINOIS

White Sleeper Cab in 3000 Series



This new model sleeper cab developed by the White Motor Co. in the 3000 series provides comfortable "sleeper" facilities for highway transport service. Only 6 inches longer than the standard cab, short wheelbase units can be used providing additional payload advantages within highway weight limitations. The Model 3000 power-lift cab feature permits complete front end accessibility. The sleeping compartment is roomy and comfortable, air conditioned by two adjustable side ventilators and one roof ventilator.

NEW

NEW MILEAGE

Looking for new ways to get more tire-miles for your money? See the new Gillette Super Traction. See how Gillette engineering puts a 50% deeper tread, with uniform load over double-anchor mileage lugs and gives more miles at lower cost in almost every hauling situation.

NEW TRACTION

Bad roads, detours, slippery highways, and off-the-road pickups don't bog down the Gillette Super Traction. Deep, sharp, scientifically angled traction lugs bite from shoulder to shoulder. Staggered center groove and sharp shoulder edges block skids and improve traction. With Gillette Super Tractions you prevent delays, improve on-time performance, keep customers and drivers happier.

NEW CARCASS

Gillette's radically new round carcass design molds the tire in the natural shape it assumes in operation. Carcass fatigue and strain are lessened; tire life increased. You get better tire performance, fewer failures, more recaps.

WANT THE FULL STORY of how these new Gillette features improve truck performance at lower cost? Call your Gillette Tire Distributor for the details of the sensational

A BEAR FOR WEAR

GILLETTE TIRES

DIVISION OF
UNITED STATES RUBBER COMPANY

NEW DOUBLE-DUTY

GILLETTE SUPER TRACTION

WEAR BETTER BECAUSE THEY ARE BUILT BETTER!

Selling Safety

Continued from Page 166

to their drivers' meetings, individual safety programs, and current accident total as compared to the same month, or any period desired, for last year.

Lessees Posted in Detail

EACH lessee was furnished with his own accident record which set forth the following facts:

TO: Doe and Doe, Inc.
FROM: safety director
California Truck Rental Co.

SUBJECT: 1948 Accident Record Review.

Total accidents, 1948	10
Total miles, 1948	250,000
Average miles per accident	25,000
Rate per 100,000 miles	4,000
Best average, miles/accident	43,251
Lowest average, miles/accident	4,369

Nine lessee fleets had no accidents.

This record, well received by lessee management, caused a lot of comment and much thinking. Therefore, our company decided that a similar record be compiled and issued every six months.

To keep all drivers up to date on the accident record of the entire fleet, a monthly posting also is made on each bulletin board indicating the total number of accidents, average miles per accident and rate per 100,000 miles. It has been found that drivers obtain a much better relative picture of the accident record when the figure showing the average miles per accident is posted.

For comparative purposes, the Oakland and Los Angeles Fleet records are maintained separately and so posted.

Safety Awards

THERE are nine individual lessee fleets entered in the Fleet Contest Division of the Greater Los Angeles Chapter of the National Safety Council. It is interesting to note that a lessee of the California Truck Rental Co. won in this division, and others are becoming serious contenders.

For the benefit of drivers not eligible for National Safety Council awards, because of insufficient number of vehicles to qualify for fleet entry, California Truck Rental Co. is making provisions for other awards. The small cost of such a presentation will be more than compensated for through increased driver morale, personal interest; both of which lead to conservation of equipment.

At present, some lessees are holding an annual dinner for all drivers. In some cases, small monetary awards are presented to accident-free drivers. In other cases, lessees are furnishing small monthly prizes for accident-free driving. Such activity can be promoted within the ranks of the lessees by the safety director.

Safety Not Office Job

A SAFETY director cannot hope to conduct a successful safety program from his office desk. He must spend only enough time there to maintain the records required, plan the program and meetings, and gather material and various literature required for driver and lessee distribution.

This company prefers to call the vehicles and drivers the "Accident Front." That is where the safety director must spend the greatest part of his time, if he is to accomplish his mission successfully. As part of his job, he must cover the routes with the drivers, be familiar with the vehicles they are driving, study their problems from a driver's viewpoint and, thus, be in a position to train, teach and advise them intelligently.

The major objective of the safety program being conducted now by our company is driver efficiency. This program seeks by friendly cooperation, guidance and suggestion, to develop greater self-respect, morale and driving ability.

END

Please resume your reading on P. 65

SINCE 1908
AHLBERG BALL BEARINGS
AHLBERG BEARING COMPANY CHICAGO
• a great name in automotive maintenance
Hard working bearings that lie deep within motor vehicles aren't quite as simple to replace as hub caps. That's another reason why it's false economy to use ordinary replacement bearings. They cost as much in time and labor to install as Ahlbergs —the bearings deservedly famous throughout the automotive maintenance industry since 1908—for unexcelled quality, super smoothness and maximum life expectancy.
So . . . if you're looking for ways to squeeze more out of your automotive maintenance dollars . . . look into Ahlberg's line which includes ball bearings of all types for cars, trucks, busses and tractors. Write for catalog and application manual.
AHLBERG BEARING COMPANY
Precision Craftsmen Since 1908
3025 West 47th Street • Chicago 32, Illinois
AHLBERG Ball Bearings
SINGLE ROW • ANGULAR CONTACT • DOUBLE ROW
• SELF ALIGNING • GREASED SEALED
• SNAP RING • THRUST

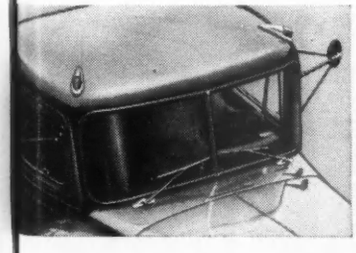
Announcing the ***ALL NEW***

Autocar Driver Cab

Tops in vision, comfort, safety

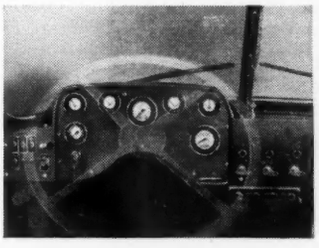
NEW **CURVED WINDSHIELD**

Gives better vision. You see more, because there's 56 percent more windshield area.



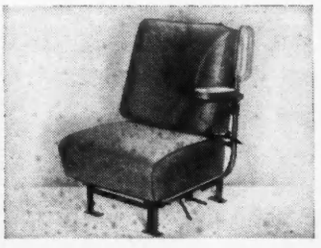
NEW **FULL-FOCUS INSTRUMENT PANEL**

All instruments right in front of you. You can see them *without moving your head.*



NEW **"FULL-ADJUST" DRIVER'S SEAT**

Individual driver's seat, with 5-way controls, adjusts to operator's best driving posture.



NEW **WIDER VISION FOR DRIVER**

Driver can sit still and see all he needs to see. This relieves strain, increases safety.

Write for illustrated booklet describing in detail all the features of this great new cab

Autocar Trucks

THEY COST LESS, BECAUSE THEY DO MORE WORK

The Autocar Company, Ardmore, Pa. • Established 1897
Factory Branches and Distributors from Coast to Coast

Washington Runaround

Continued from Page 33

to veto it on the ground that "the government can't get along on less revenue than it is receiving now." There's an outside chance, however, that the Senate may take the bit in its teeth and tack an excise-reduction rider to an unrelated bill on short notice.

How slanted can the views of a Congressman become? Certainly, not a great deal more than is indicated in a bill (H.R. 8318) introduced by Rep. Blatnik, D., Minn., which would prohibit the transportation of goods made by a firm which for seven days, consecutive or otherwise, had failed to bargain collectively with its employees. Penalties for anyone transporting such goods would be a fine of not more than $20,000 or jail for not more than five years, or both, plus the costs of prosecution. These penalties would be incurred for each violation. Under the bill, each period of seven days is a violation.

$26 Million Saving

One man's work has saved the government $26,000,000 in the procurement of military motor vehicles. This rather intriguing statement was made to Congress by Budget Director Frank Pace during appropriations hearings. It naturally raised the question as to who is he and how did he do it?

The individual is W. A. McCutcheon, the Budget Bureau's only automotive and transportation engineer, who has been carrying on a one-man battle throughout the Federal government for better motor vehicle management. He did it by convincing the military that commercial vehicles would do most of the jobs around camps, posts, and stations in the U. S. that were being done by military vehicles. The $26,000,000 will be in the initial saving on procurement for the fiscal year which ends June 30. Further savings in operation and maintenance and parts procurement will be recorded as the years go by.

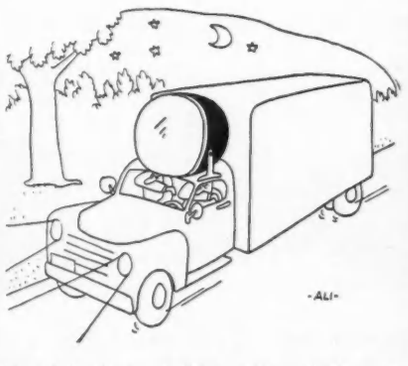
Equally interesting is the fact that the experience which Mr. McCutcheon is applying to government motor vehicle management was gained during many long years of work in commercial truck operations. He has been a fleet supervisor and in operations and maintenance work for both private and common carriers. He has also reorganized the transportation divisions of several major industrial firms. During World War II, he carried on this work in Army Ordnance and since the end of the war he has been trying to straighten out the Government's motor vehicle operations.

In addition to selling the military the idea of using standard commercial vehicles rather than heavy, expensive military trucks, Mr. McCutcheon has among other things prepared replacement standards for government vehicles; issued a preventive maintenance manual; and secured adoption of a standard reporting form which enables the Government to keep check on the operations of all its vehicles.

BPR Vehicle Roundup

Commercial vehicle registration, including trucks and buses, rose from 7,359,078 in 1948 to a total of 7,827,540 last year, an increase of 6.4 percent, according to

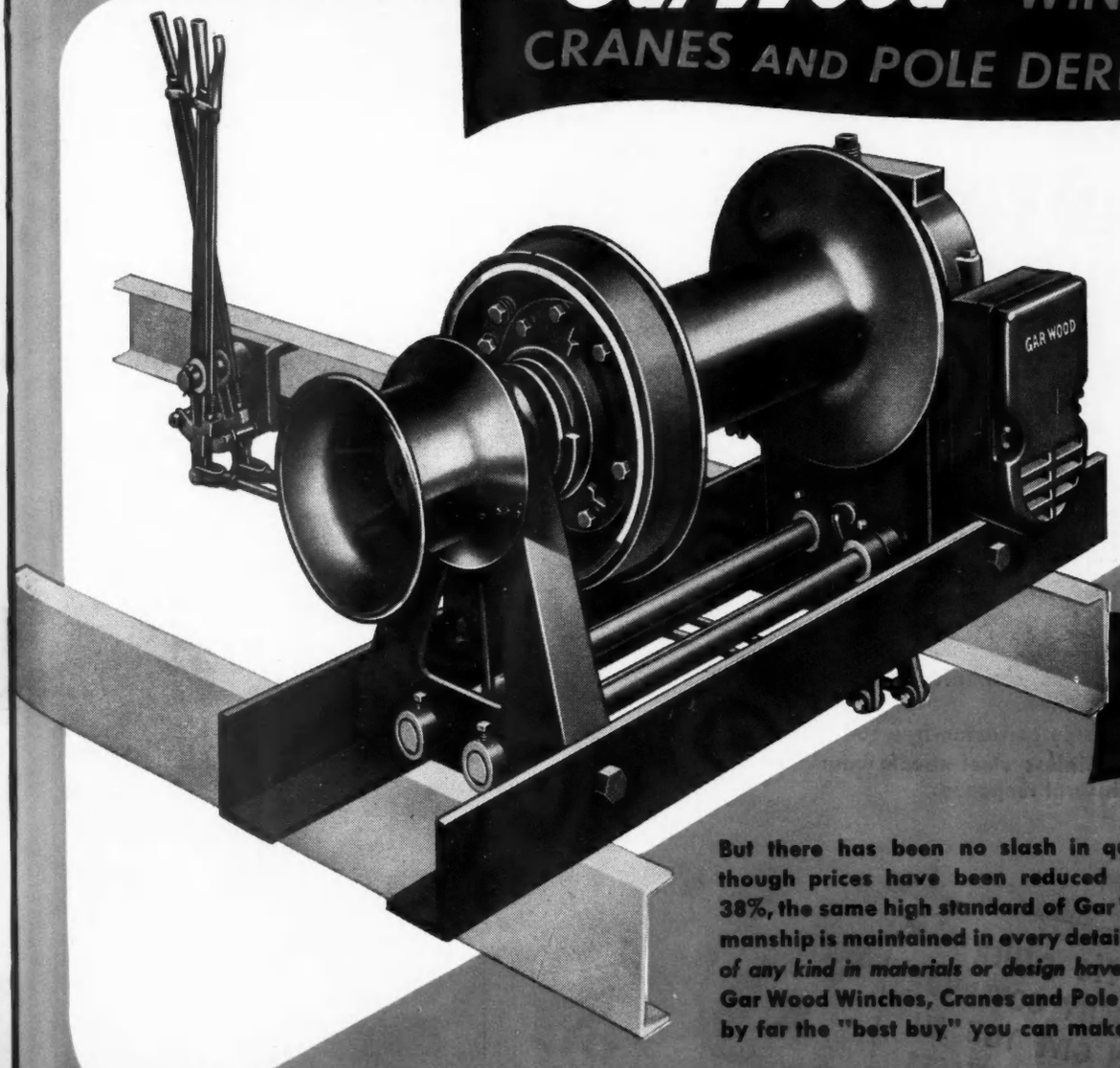
(TURN TO PAGE 172, PLEASE)



"Let him have it, Mike! He still hasn't dimmed his bright lights!"

Prices Slashed...

on all Gar Wood WINCHES CRANES AND POLE DERRICKS



Model 2MB Gar Wood Winch. *PRICE IS REDUCED APPROXIMATELY 27%.* Quality remains unchanged.

But there has been no slash in quality. Even though prices have been reduced from 6% to 38%, the same high standard of Gar Wood workmanship is maintained in every detail. *No changes of any kind in materials or design have been made.* Gar Wood Winches, Cranes and Pole Derricks are by far the "best buy" you can make.

ASK YOUR NEARBY GAR WOOD DISTRIBUTOR OR BRANCH TO QUOTE ON YOUR NEXT ORDER. THEIR LOW PRICE WILL PLEASE YOU.

GAR WOOD GW INDUSTRIES

GAR WOOD INDUSTRIES, INC. *Wayne Division, Wayne, Mich.*

***PRODUCTS*—HOISTS • DUMP BODIES • WINCHES • CRANES • TRACTOR EQUIPMENT**

DITCHERS • SHOVELS • FINEGRADERS • SPREADERS • TRUCK PATROLS

Washington Runaround

Continued from Page 170

data compiled by the Bureau of Public Roads. Registrations of commercial vehicles showed a decline from 1948 in the District of Columbia and 4 states: Indiana, Maine, New Hampshire and Vermont.

Total registrations were 44,670,588, an 8.6 percent increase, while private auto registrations jumped 9.2 percent for a total of 36,292,703.

The number of publicly-owned vehicles registered last year was 550,345 only 4 percent greater than in 1948.

Seventeen states reported an increase of 10 percent or more in total vehicle registration. Highest percentage increases were reported by Louisiana, New Mexico, Wyoming and Kentucky. Seven states registered more than 2,000,000 vehicles: California, New York, Pennsylvania, Ohio, Texas, Illinois and Michigan.

BPR also reports that motor vehicle travel also reached a new all-time high last year. The 1949 total was 7.7 percent higher than 1948, and 27.2 above the prewar peak. This trend continued upward during the first quarter of 1950. Estimated travel on rural roads during March was 7.2 percent greater than a year ago and 40 percent above March, 1941. Travel on city streets during March was up only .5 percent from last year.

Washington Miscellany

Truck and trailer manufacturers are expected to get together to coordinate engineering on brakes so that maximum braking effect can be achieved in both trucks and tractor-trailer combinations. Result should be closer adherence to ICC safety requirements . . . A magnetic fluid clutch, and magnetic amplifiers for motor and generator control, have been developed under Navy contract by Vickers' Electric Division, St. Louis. This constitutes the first commercial production of the clutch developed originally by the Bureau of Standards . . . Agriculture Department researchers say that grape shippers don't need a soft bed for boxes but tight, well-braced loads. They add that "it would also help if the railroads handled cars more carefully." . . . A new oil specification for Army use for at least the next five years is being considered by the Ordnance Dept. A compromise between gasoline engine and Diesel requirements, the more severe specification, termed Mil 2104 (SAE 10, 30, 50 heavy duty oils of high quality) replaces 2-104B oils, which have been found lacking for Army use. The interaction of low quality gasoline fuels from cracked stocks with the 2-104B oils, produced undesirable conditions in motors. Trend in military engine design to lightweight, high output, compact dimensions has played a part in decision.

END

Please resume your reading on P. 39

Vari-Speed
HANDY GOVERNOR
Characteristics and Advantages
1 Wide range of governed speeds without the necessity of any change in governor assembly.
2 Controlled light load speeds.
3 Sharp governor cut-off—minimum horsepower loss.
4 Low speed droop.
5 Final full load and no load factory calibration on air flow machine assures you accuracy and uniformity in production.
6 Simple to adjust.
7 Simple mechanical design—only one moving shaft.
8 Sturdy corrosion-free construction.
9 Stainless steel needle bearings that insure instant response.
NO OTHER VELOCITY GOVERNOR CAN GIVE YOU ALL THESE ADVANTAGES
KING-SEELEY CORPORATION
ANN ARBOR MICHIGAN
PLANTS IN ANN ARBOR GRAND RAPIDS YPSILANTI

Going Up?

This hydraulic aerial revolving ladder made by the American Coach and Body Co. can be positioned at any point in an 85-deg arc, and rotates 360 deg. It places a workman 35 ft in the air in 18 seconds. Power for hydraulic system is supplied by power take-off on the transmission

KELSEY-HAYES Truck Wheel

with Improved 3 piece rim

Available in all Popular Sizes for Leading Makes of Trucks

Know How ...ASSURES PROVEN PRODUCTS AT...

KELSEY-HAYES WHEEL COMPANY

DETROIT 32, MICHIGAN

PRODUCTS: Wheels—Hub and Drum Assemblies—Brakes—Vacuum Brake Power Units—for Passenger Cars, Trucks, Buses—Electric Brakes for House Trailers and Light Commercial Trailers—Wheels, Hubs, Axles, Parts for Farm Implements.

PLANTS: Kelsey-Hayes Plants in Michigan (4); McKeesport, Pa.; Los Angeles, Calif.; Davenport, Iowa; Windsor, Ontario, Canada.

Blueprints of Progress from ATA Meet

Continued from Page 61

of Great Southern Trucking Co. They were concerned with the fact that there is no fleet wide accepted definition of a road failure, that many fleets have not kept accurate records of such breakdown, that failures vary widely with the type of operation and sometimes with the location of the operation. For example, some fleets were considering any road delay a failure. while others described a road failure as any condition necessitating a road call or a tow. Tire failures were in some cases chalked up as road failures, while in other cases, where the driver made the repair, it was ascribed simply as a delay. Result was that fleetmen were talking different languages in most cases. They agreed mainly, however, that the electrical system, fuel pumps, bearings and rear ends, in that order, were principal causes of such trouble.

Outcome of this meeting was a recommendation that a subcommittee be appointed to study the question further, to develop a definition and a universal method of reporting failures in order to bring about uniformity. When this is done, it is expected that the evidence from representative fleets will be valuable to all in reducing breakdowns.

An important meeting Thursday covered the subject of the uniform motor vehicle size and weight code sponsored by the American Association of State Highway Officials. Edward Kiley and Lewis Kibbee, of the ATA staff, explained the code with slides and charts.

Safety Supervisors

A REVIEW of a unique method of determining performance of motor vehicles was presented to the truckers, when A. F. Stamm, of Dodge discussed the paper originally presented before SAE in Detroit last January (see February issue of CCJ, page 81). Mr. Stamm showed with charts and graphs how various factors influence the performance characteristics of the vehicle. He admitted that serious gaps still remain even though this represents the most accurate and complete data now available.

The industry was cautioned to deal carefully with incompatible and recalcitrant employees in an address by Barny Cushman, of Cushman Motor Delivery Co. Only after it is determined that the man cannot be corrected should he be discharged, he said, since the new man must be retrained and there is no assurance that he will work out any better. Mr. Cushman said that management is often entirely too lax with the use of disciplinary measures and suggested that such action be taken before it is decided to dismiss an employee. He cautioned against making hasty decisions on discipline or discharge. Moderator for the panel discussion was Benjamin R. Miller, of ATA.

Another panel discussion led by Elmer Reeves, of National Automobile Transporters Association, featured talks by Richard Boose, M. E. Hooks, Charles Ray, and O. D. Shipley. Mr. Ray, of Markel Service, Inc., said that it is absolutely necessary that the individual driver understand that education not persecution is the motivating factor behind the road patrol. If a company official will sit down with a new employee, he said, and explain just how much money is invested in him, how much the company and the entire industry depends upon the driver's behavior, his confidence can be gained. The speakers endorsed the safety patrol system, but recommended that patrol cars be plainly marked in order that the

(TURN TO PAGE 176, PLEASE)

Have YOU an Overtime Problem?

Is Overtime getting to be a habit with your truck?

Well, does the truck ever *STAND IDLE* somewhere during working hours? "How can I possibly know *that,*" you may say, "when it is out on its route? I can't keep an eye on it all day!"

The little *Servis Recorder* is the answer to your problem. Attached up in the cab, its chart tells you daily every move the truck makes —all stops and delays, day and night—and overtime too.

Now, most overtime is caused by the truck *standing idle* at times during the day. Look at the chart shown above. This truck was standing somewhere, from 2 to 4 in the afternoon. No wonder it didn't get in until nearly 7!

Of course, it may not have been the driver's fault—not all delays can be laid to him. But you want to KNOW; expensive Overtime is just another burden on your high trucking costs.

Write for the Servis Recorder story today.

THE SERVICE RECORDER COMPANY
1375 Euclid Avenue • Cleveland 15, Ohio

The Servis Recorder

Shows Busy and Idle Time...All Day

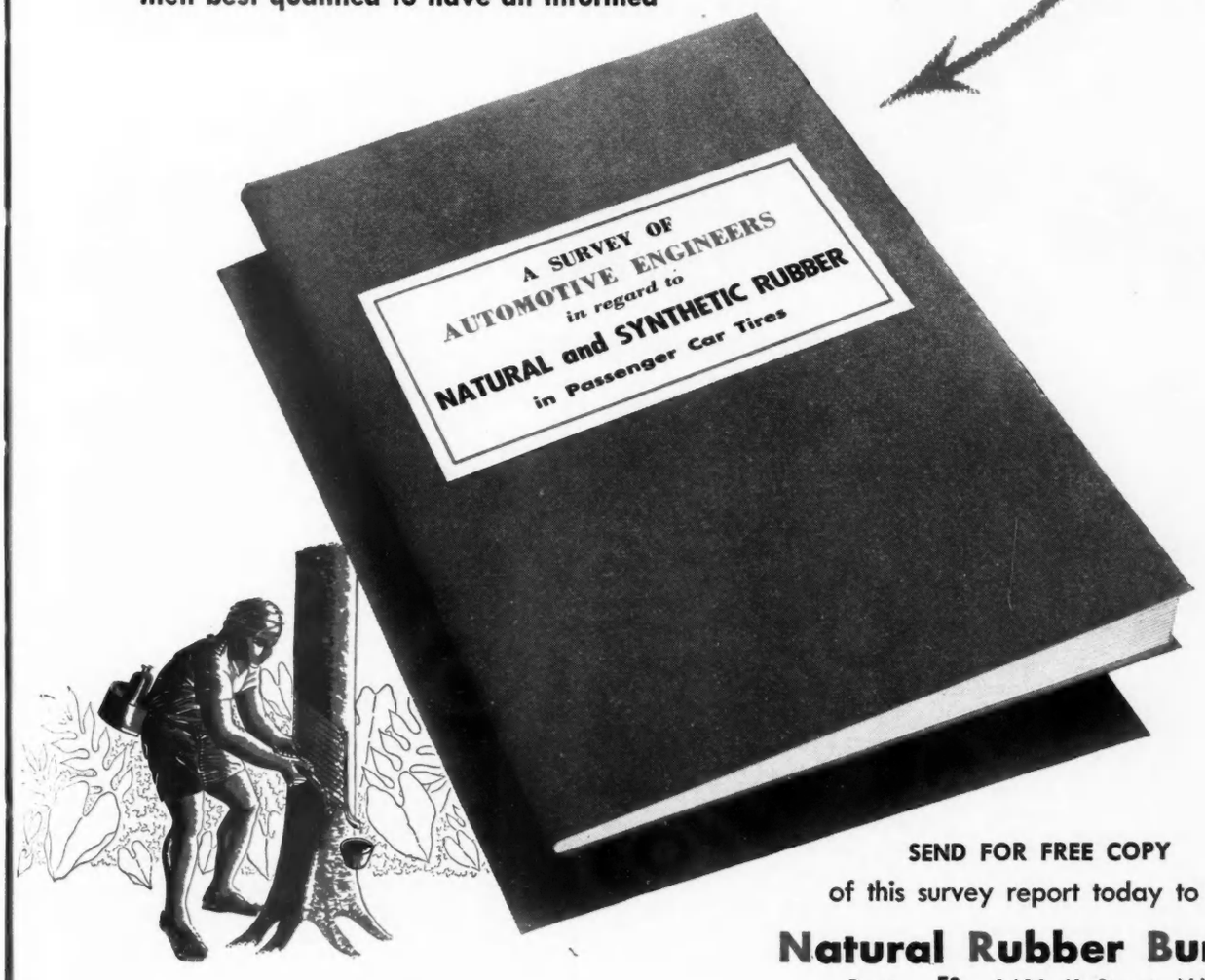
Would You Like to Know What America's Leading Automotive Engineers Think of Natural Rubber?

The growers of natural rubber in Southeast Asia wanted the facts. They wanted to know the truth about natural rubber in tires.

So they asked National Analysts, Inc., a distinguished research firm in Philadelphia, to find out — without favor or prejudice.

National Analysts went directly to the men best qualified to have an informed opinion on the subject — the automotive engineers whose job it is to select and test tires for original equipment on America's cars.

Here is their answer — the complete report by National Analysts on interviews with automotive engineers in the 14 companies who make 99% of the automobiles in the U.S.



SEND FOR FREE COPY

of this survey report today to the

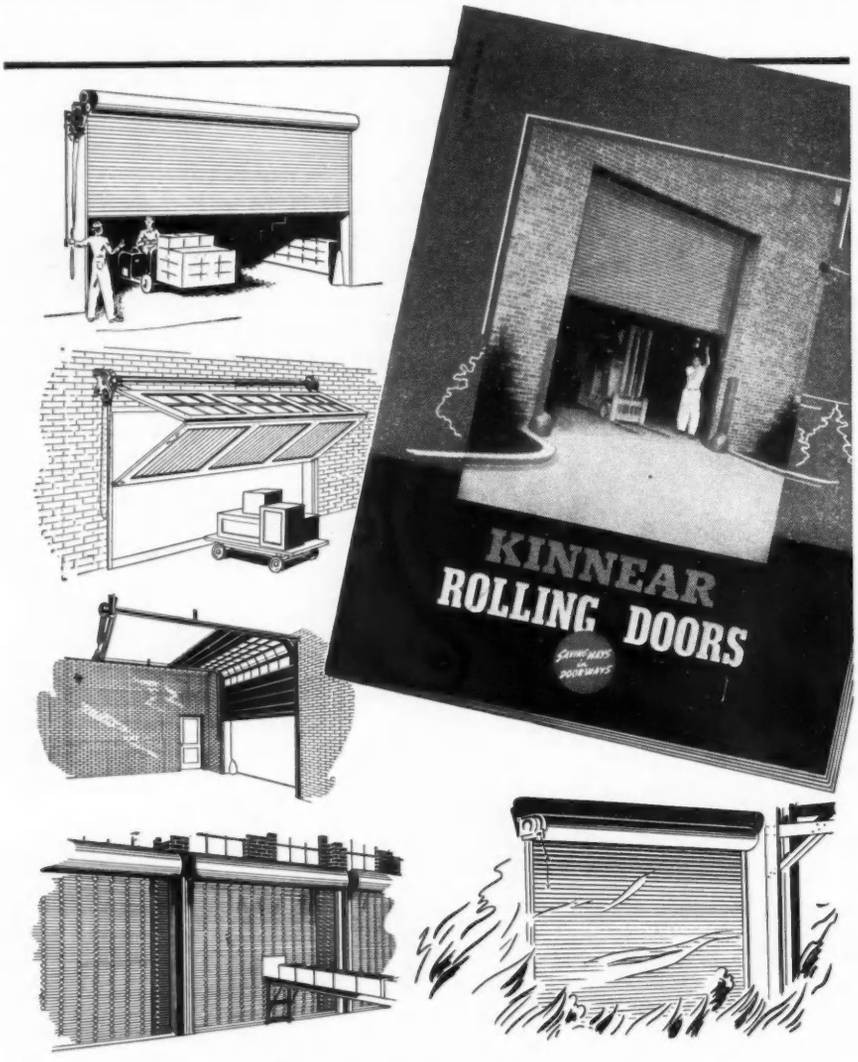
Natural Rubber Bureau

Dept. E3, 1631 K Street, N.W.
Washington 6, D.C.

Natural Rubber

Nature *and* Science Serving Mankind

New, Complete DOOR DATA



Space-Saving • Time-Saving • Doors for every need

You'll have full information on cost-cutting doors for every need in this complete new Kinnear catalog. For example, it presents:

Kinnear Rolling Doors. The famous interlocking steel-slat doors—*originated by Kinnear*—glide smoothly, easily upward, coiling out of the way overhead. They save floor and wall space. All-metal construction assures extra years of low-cost service, protection against fire, storm, intrusion, and accidental damage. Available with Kinnear motor operators and push-button control.

Kinnear Rolling Fire Doors. The famous "Ak-bar" Fire Door, similar to doors above, but featuring automatic closure in case of fire, with safety for building occupants.

Kinnear Rol-TOP Doors. Section-type upward-acting doors, of either wood or all-metal construction. Paneled for glass as desired.

Kinnear Bi-Fold Doors. Two-section doors of wood or metal that "jacknife" to overhead position. Paneled for glass as desired.

Kinnear Rolling Grilles. Sturdy upward-coiling curtain of interlocking steel bars and links that protect property without blocking light, vision, or sound. Any size.

Send for FREE catalog today.

The KINNEAR Manufacturing Co.
2100-20 Fields Avenue, Columbus 16, Ohio
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Offices and Agents in All Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

Blueprints of Progress

Continued from Page 174

driver will not divert his attention from the road by studying a trailing car he may wonder about.

A panel of three trucking industry safety directors agreed in another session that psycho-physical tests of driving skills should be a method of educating the drivers to their own individual limitations and should not be used as a method of eliminating them from their jobs. It was agreed that one of the most important features of the tests is the personal interest shown by the drivers in their test results. They indicated that most drivers have an honest interest in improving their scores, and this has led directly to an improvement in driving records. It was stressed, however, that it is not wise to place too much dependence in such tests. The drivers' attitudes and past experiences were factors which all panel speakers listed as being of primary importance in the selection or in the elimination of drivers.

Dr. Ross A. McFarland, of the Harvard School of Public Health, cited both the state of mind of the driver and the design of his equipment as one of the primary causes of highway accidents. Psychological and personal fitness play a major role in highway safety, he said. He emphasized, however, that both improper highway design and poorly designed vehicles contribute to conditions causing a great proportion of highway accidents.

Terminal Operations

THE Terminal men got a first-hand view of insurance problems in the interchange and leasing of equipment between motor carriers on Tuesday, when Irvin S. Markel, of Markel Service, Inc., outlined bugaboos in interchange agreements with respect to bodily injury and property damage coverage. Even though the trailer interchange agreement set up by the common carrier conference proposes to establish who shall be responsible for providing the insurance, every insurance policy provides that no contractual agreement made by the insureds are binding on the insurance companies, he said. It will never be sound insurance-wise, he warned, to use leased operators

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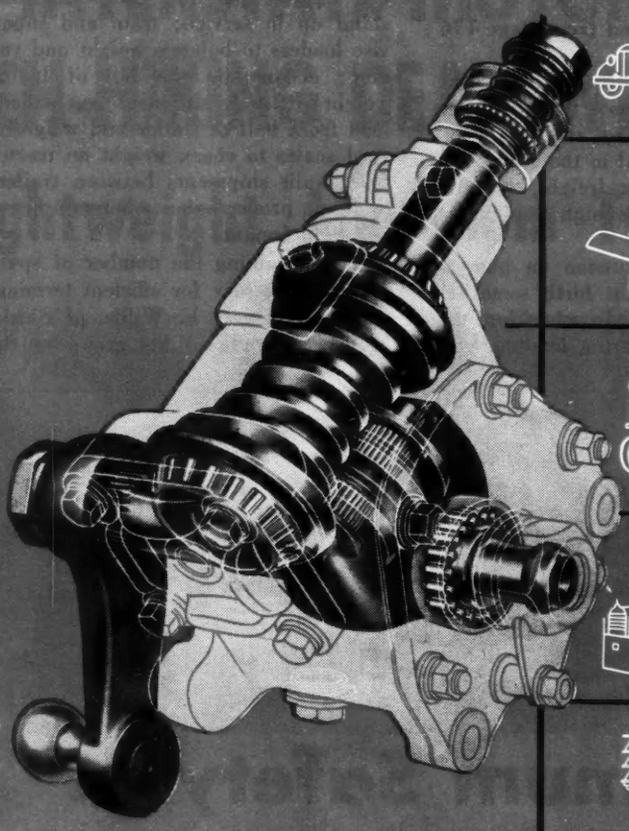
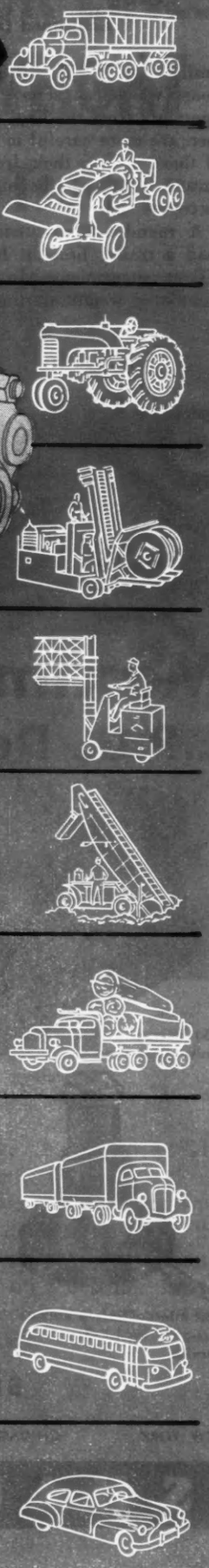
JOBSERVATION

A "live wire" is effective only if well grounded

Gemmer Easy Steering Lowers Costs





by Cutting Maintenance ... and Speeding Schedules

Easy maneuverability of Gemmer steered vehicles helps to make faster schedules through traffic, in and out of parking places, docks and narrow entries. The lessened steering load substantially reduces driver fatigue. No letdown the latter part of the day. Increased mileage per vehicle makes for important reduction in operating as well as capital costs.

Gemmer Easy Steering cuts maintenance. Having little or none of its own, it contributes to reduction of over-all vehicle maintenance. Easy maneuverability plus alert, untired drivers help hold down vehicle damage costs.

Gemmer Easy Steering is always responsive, firm, with no rubbery feeling or wander. Rolling gear tooth sector, plenty of antifriction bearings, almost eliminate friction. Strength is abundant and there is plenty of power for parking.

With reasonable care, a Gemmer Steering Gear will last the life of the vehicle.

GEMMER MANUFACTURING CO.

6400 Mt. Elliott • Detroit 11, Michigan

Gemmer Has Made Motor Vehicle Steering Gears for 43 Years

4123

Blueprints of Progress

Continued from Page 176

until there is some sort of a clearing house which can screen the legitimate operators from the bad, and until fleetmen are more careful in their selection of those pulling their freight, their insurance costs will be high due to the increased risk.

A roundtable discussion on how to load a trailer brought forth some excellent suggestions. In checking accumulated weight during loading, recommended procedures were listed as: use lightest possible equipment that stand up in service; train and supervise loaders to balance weight and volume; accumulate the bill of lading weight of each shipment as loaded; load front half of trailer and weigh on yard scales to check weight on tractor axle; split shipments between trailers to obtain proper balance between heavy and light freight.

In determining the number of spare trailers necessary for efficient terminal operations Harry E. Willis, of Shirks Motor Express, led his group to the conclusion that approximately 125 per cent would be required for long haul and fast turn-around, while up to 50 per cent spare trailers would be necessary for short hauls under fixed schedules. The group recognized the fact that no figure would suit all operations but agreed that these percentages were workable in most situations.

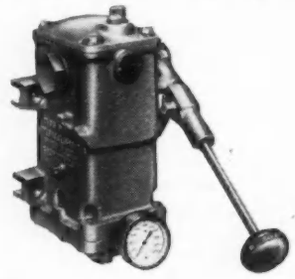
Other papers of interest to terminal managers included one on a centralized checking system set up by W. Fred White, and a report on engineering studies in highway terminals by Neil Drake, of Drake, Startzman, Wheahan, Barclay, Inc. Mr. Drake reported on a study of twenty terminals scattered over the country and listed practical ways of speeding up terminal handling operations through improved equipment, careful planning of terminals, good supervision of personnel and adequate record systems for checking costs. As is known a working manual developed as a result of these studies is available from the Regular Common Carrier Conference. The loose-leaf volume has been prepared to enable operators to reduce handling costs, install better controls and to plan and construct more efficient terminals.

The terminal boys were set back on their heels by Professor William Way, Jr., of the University of Tennessee, when he declared that educational institutions were not providing the right type of training for men in the transportation industry. But in addition, trucking executives have not given little thought to the type of training they would require in a new employe, he said. He warned that the truckers had the dual obligation of assisting in drawing up a program and of *employing* the graduates of the courses. The University of Tennessee, he explained, has had a practical course for training transportation men for the last three years, and reports show that 87 per cent of the graduates are now employed in the industry.

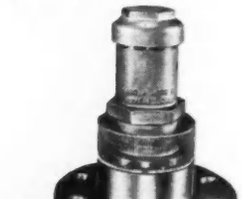
On Tuesday at the combined luncheon President Henry E. English urged the truckers to intensify their state

(TURN TO PAGE 180, PLEASE)

Maximum Safety In L.P.G. Delivery Equipment



S&J Internal Safety Valve Operator.



S&J Internal Safety Valve designed for L.P.G. service.

For maximum safety and dependability in transporting and discharging L.P. Gases, Shand & Jurs has designed a special Internal Safety Valve for use in L.P.G. tanks. It is normally held closed by spring pressure, and can be opened, and held open, only by hydraulic pressure supplied by the operator. A release of this hydraulic pressure will cause the valve to close. If fire occurs near the tank while discharging, small fusible plugs located in the hydraulic lines melt, releasing pressure and allowing any open valve to close instantly. A safety trip installed in conjunction with the hydraulic system will automatically close the valves instantly if truck moves during loading or unloading operations. The S&J Internal Safety Valve is designed to give maximum flow with minimum turbulence and resultant vaporization. Positive, smooth opening of the valve by hydraulic pressure reduces surging, and constant pressure of the internal valve spring causes it to close instantly when hydraulic pressure is released.

SHAND & JURS CO.

BERKELEY, CALIFORNIA

NEW YORK CHICAGO HOUSTON LOS ANGELES SEATTLE

SHAND & JURS

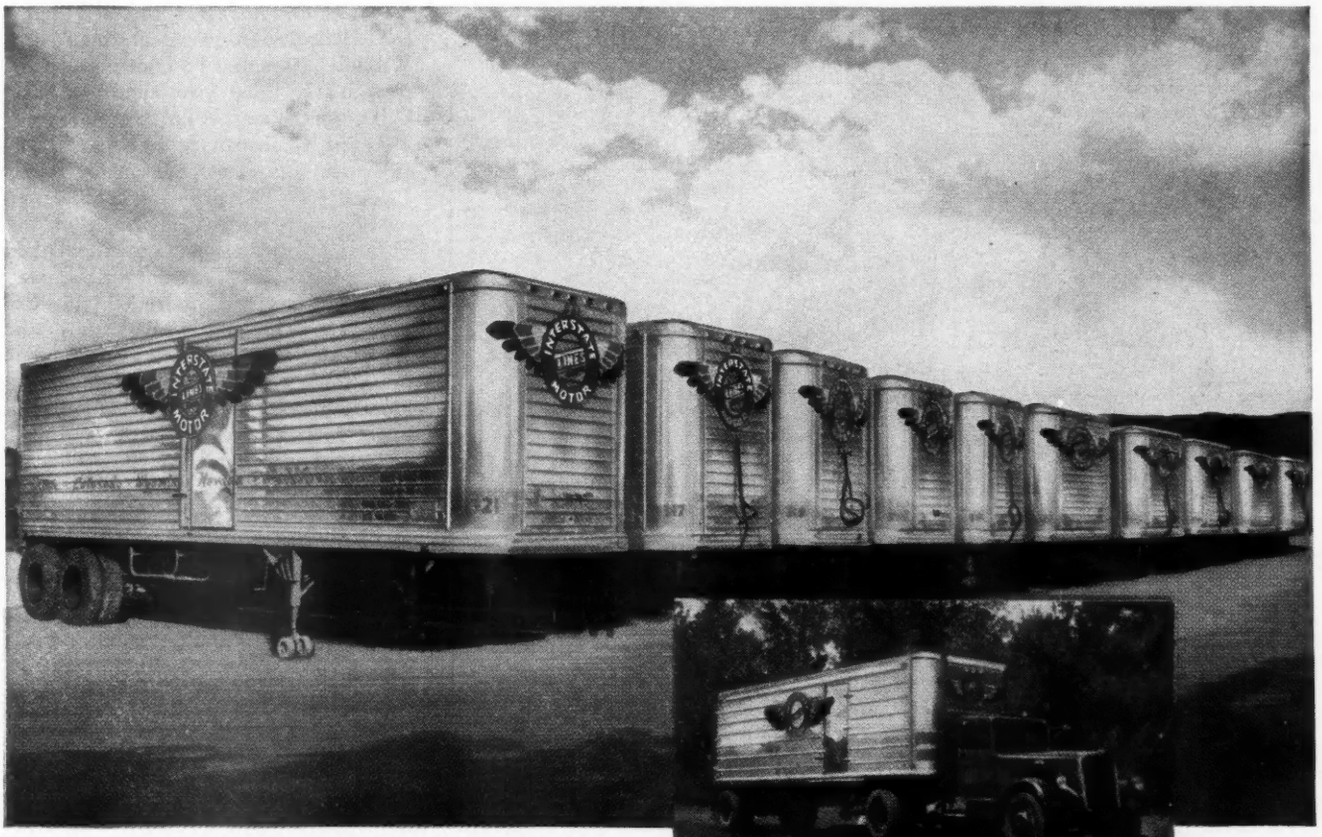
TTMA Traffic Guide

Traffic Committee of the Truck-Trailer Manufacturers Assn., Inc., has released Freight Classification Guide No. 2 to replace the original guide issued in August, 1948.

The guide lists in Part I over 800 trade or catalog names of items commonly shipped by truck-trailer manufacturers or their suppliers. Each item has a classification key number for which, in Part II, there is shown the correct bill of lading description, the proper method of packing and the applicable rating.

15 YEARS AGO INTERSTATE MOTOR LINES DITCHED HITCH-HIKING DEAD WEIGHT

with Brown Lightweight Aluminum Trailers



Part of Interstate's present fleet of modern, lightweight, Brown Aluminum Trailers.

Original Brown Trailer purchased by Interstate in 1935 — still in operation.

INTERSTATE MOTOR LINES, one of the original Brown Aluminum Trailer users, can point to proof of Brown weight savings and performance. Brown's light weight has been building bigger payloads and profits for Interstate for fifteen years. Now their fleet boasts 35 Brown beauties.

"Fifteen years of experience," says Interstate, "shows an average annual maintenance cost of only $30 per trailer." Drivers like them, too — "The easiest pulling trailer in the fleet," they say.

If hitch-hiking dead trailer weight is stealing your profits, call on your Brown distributor. Let "the scale tell the tale" — weigh up your conventional trailers — then put a Brown on the scale. Figure pounds saved and profits added. See for yourself why Browns are the best buy today.

The Scale Tells the Tale

Brown ALUMINUM TRAILERS

BROWN TRAILERS, INC.

Toledo, Ohio • Spokane, Wash.

Distributors in Principal Cities

Blueprints of Progress

Continued from Page 178

trucking association work in a move to improve the industry's record for safety and efficiency. The real work to be done in the state associations, he said, is in fostering the retraining of drivers to maintain their standards of highway courtesy and in the proper handling of equipment, in spreading new techniques of equnipment maintenance and in improving terminal operating practices. The reputation of the entire industry, he concluded, is the sum total of the reputations of the companies in it.

Council Officers

P. A. AMATO, Federal Express, Inc., Indianapolis, was elected chairman of ATA's Equipment and Maintenance Council for the term 1950-'51.

Other officers elected during the annual Spring meeting included first vice-chairman, W. F. White, Great Southern Trucking Co., Jacksonville, Fla.; second vice-chairman, T. F. Cowley, Central Motor Lines, Charlotte, N. C.; third vice-chairman, L. E. Kassebaum, Consolidated Freightways, Inc., Portland, Ore.; treasurer, David Carven, McLean Trucking Co., Winston-Salem, N. C.; secretary, Lewis C. Kibbee, ATA, Washington.

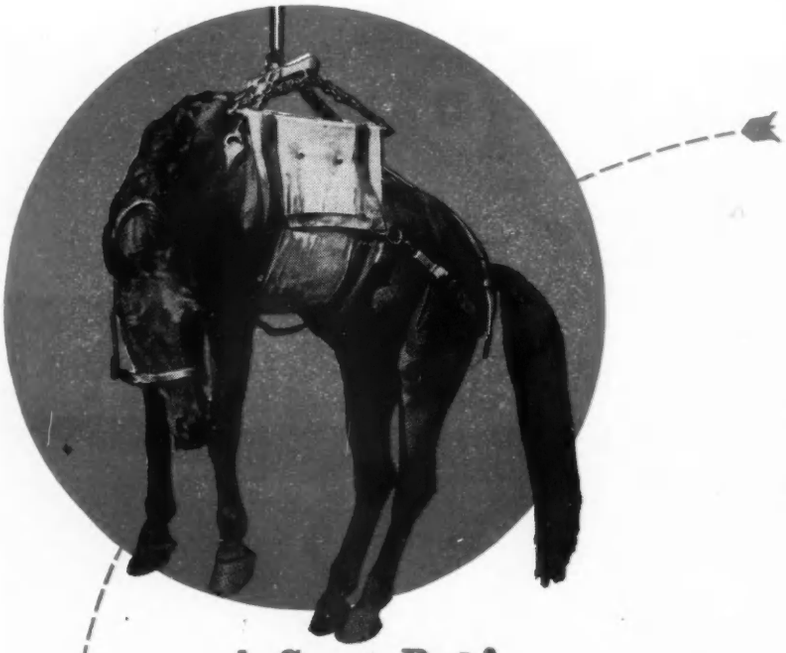
Kenneth N. Beadle, saefty director, Pacific Intermountain Express Co., Oakland, Cal., was elected chairman of the ATA Council of Safety Supervisors. Other officers named were: M. R. Youngman, Super Service Motor Freight Co., Nashville, first vice chairman; Beeman Carrell, Red Ball Motor Freight, Inc., Dallas, second vice chairman; Roy Wilkins, Associated Transport, Inc., New York, third vice chairman, and G. D. Sontheimer, ATA, secretary.

Acting Chairman S. T. King, executive vice president, Mason & Dixon Lines, Inc., Kingsport, Tenn., was unanimously elected chairman of the Terminal Operations Council. Other officers include: C. G. Zwingle, vice president, Pacific Intermountain Express Co., Oakland, Calif.; Harry E. Willis, vice president, Shirks Motor Express Corp., Lancaster, Pa.; Martin L. Moore, district manager, Roadway Express, Inc., Akron, named first, second and third vice chairmen, respectively; and R. Y. Sharpe, president, Pilot Freight Carriers, Inc., Winston-Salem, N. C., treasurer. Hoy Stevens, of ATA in Washington, was retained as secretary.

The 1951 joint Spring meetings of the ATA Council of Safety Supervisors, Terminal Operations and Equipment and Maintenance Councils, will be held in San Francisco. The steering committees of the three groups agreed on the California city and tentatively set the date as the second week in May.

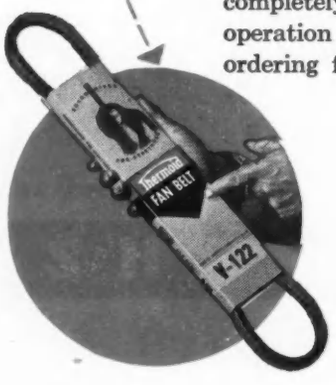
END

Please resume your reading on P. 62



A Sure Bet!

Here's one horse you can bet on every time, with complete assurance you're backing a winner. It's Thermoid's "Horse of a different color"—used to demonstrate Thermoid's Thermodized Pre-Stretching Process—*which checks fan belt failure before it starts.* A Thermodized Pre-Stretched Fan Belt was actually used to support the weight of a 1500 pound horse. Afterward, it was returned to service in the car from which it was borrowed *and it worked perfectly at the original adjustment, showing no permanent stretch had occurred.* For long life and completely dependable service under the most severe operation conditions, specify *Thermoid* when you're ordering fan belts. They're a sure bet—every time!



Thermoid

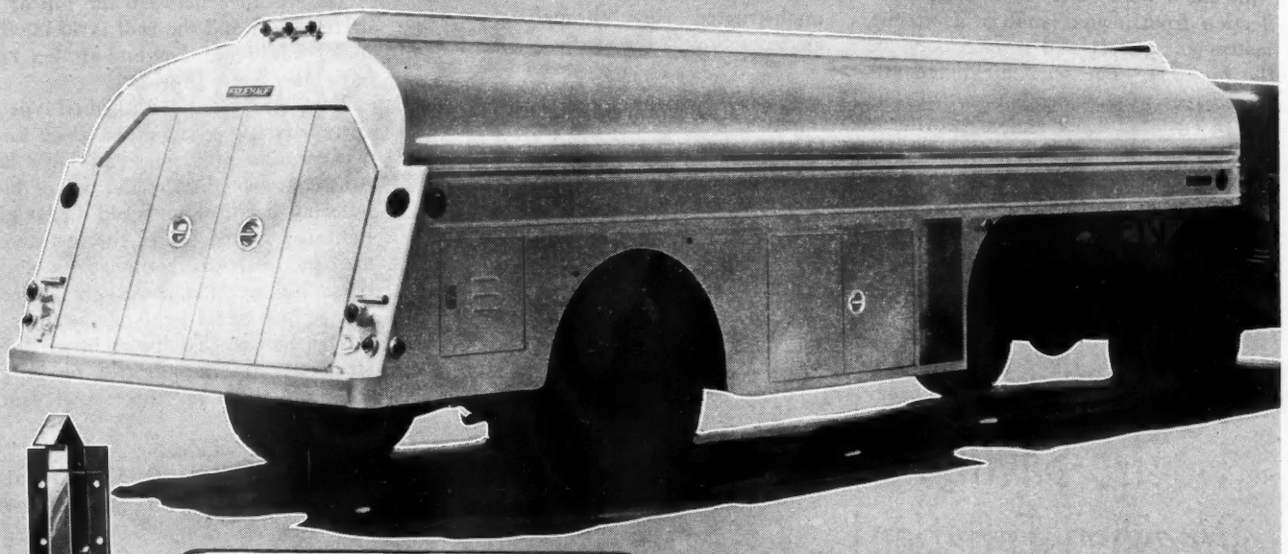
Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Clutch Facings • Car Mats • Thermoid Precision Process Equipment.

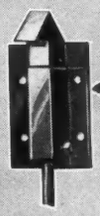
Thermoid Company • Trenton, N. J.

French Bells for Bonds

Naval personnel take part in a ceremony in New York City as the first of a shipment of replicas of the original Liberty Bell from France is mounted on a Ford Truck. The Ford Motor Co. has loaned 49 new red, white and blue trucks to the Treasury department to carry the bells to all states and the District of Columbia in the U. S. Savings Bond Drive

FRUEHAUF TRAILERS *Hansen Equipped* for TURKEY





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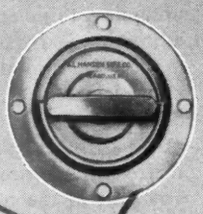


No. 79-L

In Distant Lands— far from Service — Equip with Hansen

IN DISTANT LANDS, with service far away, it pays to get the best equipment. That is why the FRUEHAUF TRAILER COMPANY took special precautions and fitted their trailer tanks with Hansen Hardware—noted for its ruggedness, dependability and freedom from service requirements.

Twenty of these Fruehauf Trailer Co. tanks were shipped to Ankara, the capital of Turkey, and all of them were Hansen equipped. Hansen Flush Handles and Slam-and-Take-up Locks were used on rear doors and large compartment. The Handles provide maximum load width. The Locks hold doors in tight, rattle-proof position.

If you build, specify, buy or use custom-built bodies, tanks or trailers, it will pay you to standardize on Hansen. ASK FOR CATALOG

HANSEN HARDWARE for Commercial Bodies

A. L. HANSEN MFG. CO. 5047 RAVENSWOOD AVE. CHICAGO 40, ILL.

New Autocar Cab Tailored to Needs

Continued from Page 76

windshield were designed to reduce reflection from inside (such as from the instrument panel) and from outside on the highway. The windshield and enlarged rear window are both set in rubber to cushion shock and to provide a seal against the weather.

Since the corner posts are moved back, so also are the doors. The door windows extend farther back in reference to the driver's position. Thus in looking out the side window he has an unobstructed view through a wider angle.

Cab Characteristics

THE Autocar Driver Cab measures 72 in. in width. This compares with the previous cab's 63 in. Inside the cab the across-the-hips width is 66 in. which compares with 57 in. heretofore. An increase in the distance to six in. from the left-hand edge of the steering wheel to the door allows the driver plenty of elbow room and complete freedom of movement.

The distance between the top of the driver's seat and the roof is 40 in. Two in. of additional fore-and-aft leg room have also been provided.

New, heavy-duty, individual-type instruments are so arranged close to the driver's line of vision and have been made more legible by the use of block lettering with improved edge-glass lighting. To the left of the instruments are grouped all switches, including those for ignition, headlights, marker lights, dash panel lights, dome light and starter button. To the right of the instruments are the throttle, choke controls and those for three cowl ventilators.

Insulating against noise, heat and cold, includes the thick floor-mat of reinforced rubber fabric, backed by felt insulation.

Ventilation and Heating

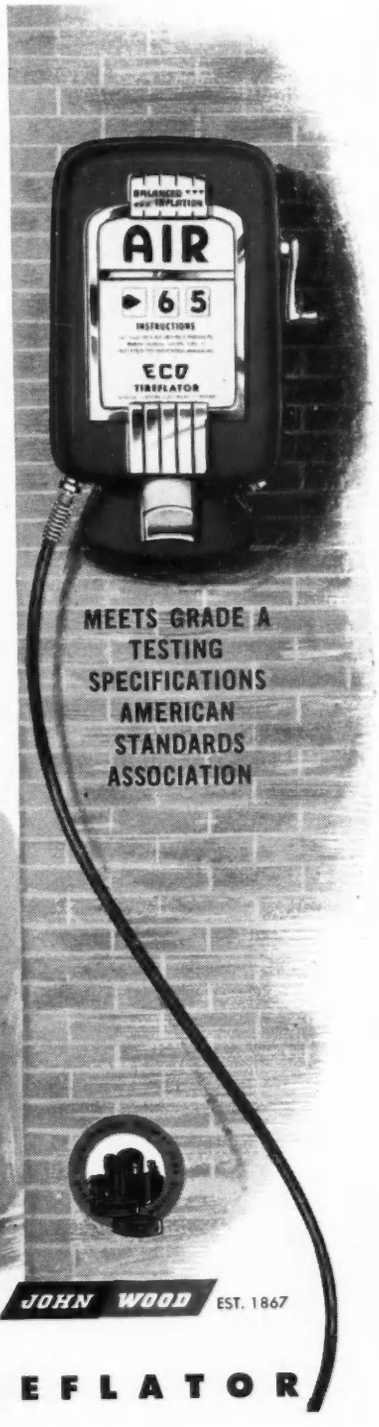
RAIN separators built into side cowl ventilators, one on either side of the cab, have an inside baffle which permits air but no rain to enter. In addition, there is another large cowl ventilator in front of the windshield and a glass-wing ventilator in each door. As optional equipment, a fresh-air heating, defrosting and ventilating system of new design is available. Controls conveniently located permit the driver to recirculate all or part of the warmed air in the cab through the heater or to pull in fresh air entirely, or in part. All or any part of the heated air can be used to defrost the windshield or to warm the interior. During warm weather the same system can be used for extra ventilation.

Controls grouped on the left-hand side of the driver's seat permit him to raise or lower the cushion in front, raise or lower it in back, move it fore and aft in the frame, move the back through an arc of 12 degrees and adjust the whole seat fore and aft. The seat is of double-duty spring construction, the frame of tubular steel. An arm-rest, which folds up out of the way when not in use, is provided for the left-hand side of this seat.

END

Please resume your reading on P. 78

Here's Fast, Automatic,
Tire-Saving,
Precision Inflation!



Everyone recognizes the vital importance of *precision* tire inflation, but the Eco Tireflator is the *only* tire inflating machine with all the features that make such precision possible! *Only* Eco Tireflators have factory-calibration for *lasting* precision accuracy over a *complete*, 5 to 110 pound service range. *Only* Eco Tireflators offer such *fast* automatic delivery of air and such easily set, precise control.

Eco Tireflators are available in post type, reel type, remote control type, and, as illustrated, in the wall type (Model 97). For full details, write for Catalog No. AIR-1. *John Wood Company, Bennett Pump Division, Muskegon, Mich.*

JOHN WOOD EST. 1867

ECO TIREFLATOR

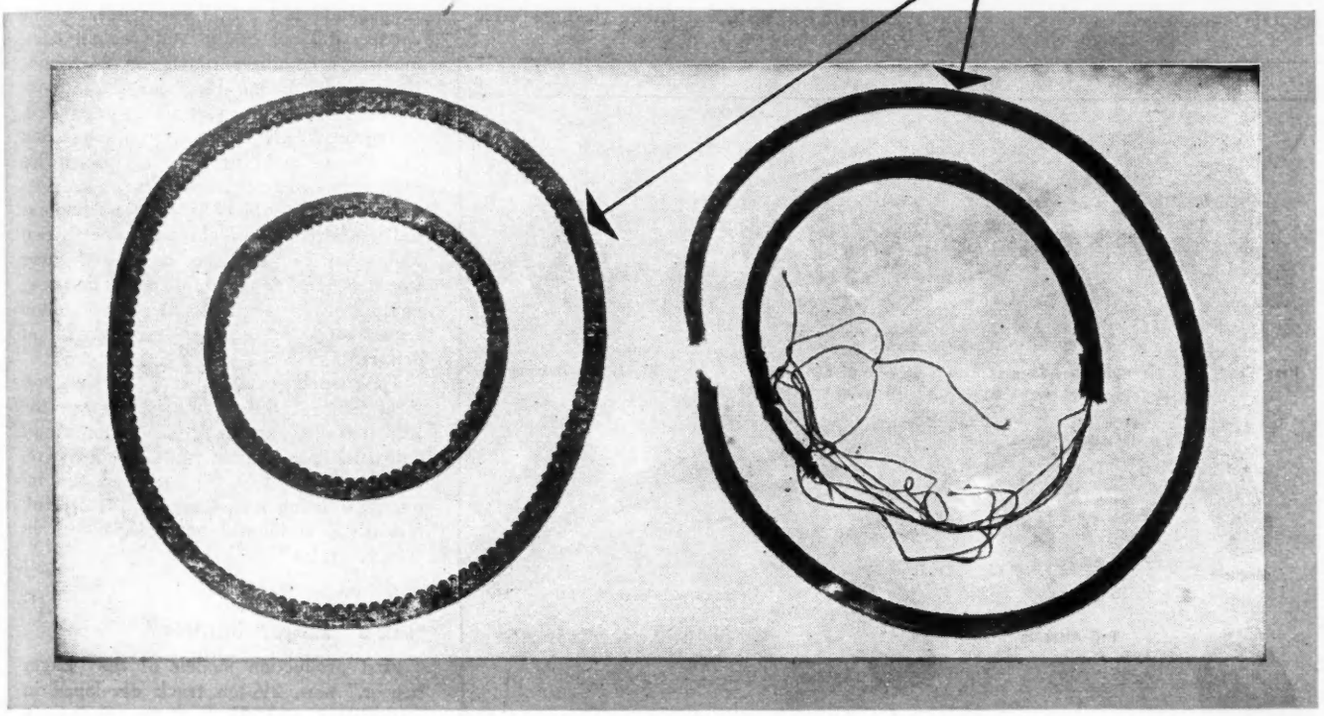
★★★★★★★★★★★★★★★★★★★★★★★★★★

JOBSERVATION

What a man accomplishes depends mainly on what he does when he has nothing to do

★★★★★★★★★★★★★★★★★★★★★★★★★★

Which belts went to school 90% LONGER?



Both these sets of automotive belts ran on school busses. The big belts drove generators, the small belts compressors.

The set on the left—Dayton Cog-Belts*—went 46,241 miles without failure. The other set "flunked" after only 24,277 miles.

Dayton Automotive Cog-Belts* consistently outrun other makes. They are of exclusive, patented Cog construction. They are scientifically built to bend. The space between cogs takes up compression as the belt goes round the pulleys. Result: greater flexibility, less heat generated, longer life.

For longer trouble-free belt life on fan, generator, and accessory drives, take a lesson from these belts that went to school—get Dayton Cog-Belts*! See your Dayton Distributor or write:

THE DAYTON RUBBER COMPANY, DAYTON 1, OHIO

*T.M.

Safety shows up in "Profit and Loss"

Safety often means the difference between a fleet owner's operating in the red or the black. Dayton has designed a colorful set of safety posters (17" x 22") that will help sell your drivers on safety. They are *free* to all fleets. Just fill out the coupon!

THE DAYTON RUBBER COMPANY
DAYTON 1, OHIO

Name_____

Company_____

Street_____

City & State_____

Cog-Belts by Dayton Rubber

WORLD'S LARGEST MANUFACTURER OF V-BELTS

Continued from Page 27

action," he said

"We are undertaking at substantial expense, a broad-gaged sequence of activities to bring all the social forces which make up American life to an understanding of the national transportation problem and its possible solution. Above all, we are going to inform the public about the actual facts of trucking and the trucking industry. Let the public decide, let the legislatures act in the full glare of accurate knowledge."

1950 Domestic Truck Factory Sales by G.V.W.*

	5,000 lb. & Less	5,001-10,000	10,001-14,000	14,001-16,000	16,001-19,500	19,501-26,000	Over 26,000	Total
January	39,252	19,251	6,804	13,093	2,680	1,815	1,459	84,354
February	39,629	17,151	6,032	11,739	2,720	2,157	1,511	80,939
March	47,828	20,921	7,200	14,644	3,680	3,474	2,049	99,796
Total—Three Months 1950	126,709	57,323	20,036	39,476	9,080	7,446	5,019	265,089
Total—Three Months 1949	104,486	79,322	25,115	51,346	9,266	6,201	4,010	279,747

* Automobile Manufacturers Association.

After hearing the ideas and suggestions of their speakers, the tank truck carriers got together to express a few of their own in a panel discussion. Moderating was Franklyn Waltman, public relations director for the Sun Oil Co. Anti-truck propaganda, and the proprietary trucks were discussed by carriers. Some felt that a part of the responsibility for anti-truck propaganda lay with the carriers. If the carriers did not exceed state weight laws, or were not discourteous on highways, there would be no basis for the attacks that are now taking place, they suggested.

Arguments given against the suggestion that there should be some agreement for interchange of equipment between carriers were that it would be impractical without uniform size and weight laws and special reciprocity between the states and there would be additional problems as licensing equipment in several states, and union regulations concerning the work of drivers.

Tank truck operators were told that "we must educate the private carriers to the fact that they are the real target of all anti-truck propaganda and legislative restrictions" and that "evolution of the industry is being hamstrung by the willful, unrealistic actions of some legislators in various states."

FEDERAL BALL BEARINGS —the most complete line of automotive ball bearings anywhere!

Just a telephone call away ... to your local N. A. P. A. jobber or warehouse.

N·A·P·A National Automotive Parts Association Assurance of Quality

FEDERAL BALL BEARINGS

THE FEDERAL BEARINGS CO., INC., Poughkeepsie, N. Y.

ONE OF AMERICA'S LEADING BALL BEARING MANUFACTURERS

Quality Since 1908

Reo's "Eager Beaver"

First production models of the "Eager Beaver," new, 2½-ton truck developed in conjunction with U. S. Army Ordnance, rolled off the Reo Motors, Inc., assembly lines recently.

The new trucks are part of a $30,000,000 order for approximately 5,000 "Eager Beavers" which are to be delivered to Army Ordnance in the next six months. The trucks will be powered by Reo's new Gold Comet gasoline engines.

The N. J. Weight Bill

The much discussed and long debated New Jersey Assembly Bill 13, increasing truck license fees, imposing axle weight restrictions and providing severe overloading penalties has been finally passed. Salient provisions of the bill which becomes effective January 1, 1951, are as follows: It continues present gross weights of 30,000 lb on a two-axle four-wheel vehicle; 40,000 lb on a three-axle six-wheel unit and 60,000 lb on tractor-semi-trailer and truck-trailer combinations. It limits loads to 22,400 lb on a single axle and 32,000 lb on a tandem axle.

No change is made in length or width of units, but height is increased from 12½ ft to 13½ ft maximum.

New axle weight limitations do not apply until March 31, 1955, to any vehicle regis-

(TURN TO PAGE 186, PLEASE)

FOR TROUBLE-FREE, EASY STEERING

Mechanics pioneered in the furnishing of high grade *roller bearing* universal joints for steering column applications. Two sizes of several types, *all factory lubricated for life,* are so tightly sealed they can be put in the most inaccessible places. It is impossible for dirt or moisture to enter the bearings; thus a lifetime of trouble-free service is assured. Of high grade *roller bearing* construction, MECHANICS UNIVERSAL JOINTS are made to very close tolerance — for a minimum of back lash. Furnished in either forged yoke or stamped yoke construction, these joints will operate at angles as high as 45°. A change to MECHANICS Roller Bearing UNIVERSAL JOINTS has cut steering effort as much as 25 percent.

MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2034 Harrison Avenue, Rockford, Illinois

MECHANICS
Roller Bearing BW
UNIVERSAL JOINTS
For Cars • Trucks • Busses and Industrial Equipment

CCJ News Reports

Continued from Page 184

tered in N. J. prior to March 1, 1950, or contracted for purchase by N. J. residents prior to that date.

New axle weight limitations apply January 1 next to all out-of-state vehicles and to any new vehicle registered in N. J., which was not ordered by March 1, 1950.

License fee increases, range from no increase on gvw of 1000 lb to a maximum increase of $54 on a gvw of 37,000 lb. The higher increases are found in the 20,000 to 40,000 gvw classifications. The new fee schedule applies to the 1951 licensing year.

All State Police or motor vehicle inspectors can stop vehicles for weighing on portable or stationary scales. They can also require vehicles to be driven to public scales when they are within two miles. Drivers are required to unload excess portion above gross weight or axle weight limitations at the risk of owner or operator.

No arrests shall be made except where weight limitations are exceeded by more than 5 per cent.

Drivers failing to stop or refusing to submit to weighing shall be fined not exceeding $100.

Owners of vehicles exceeding gross weight or axle weight limitations or exceeding gross weight on certificate of registration shall be fined not less than $200 nor more than $500 for the first offense. For all subsequent offenses regardless of time between them, fines are not less than $500 nor more than $750. Licenses may be revoked for all overloading after first offense.

Any person driving vehicles in excess of gross weight limits shall be liable for all damage caused to highways or bridges.

Vehicles operating within legal weight limitations cannot use this as a defense for damage to bridges or highways where their weights exceed the posted capacity of the structure.

A NEW DIMENSION IN CLUTCH SERVICE

You get *more miles* of trouble-free service from these new, complete clutch units. Take *less time* to install, too! And you're *sure* of full clutch release and smooth clutch engagement.

Consist of a

New POWERFLEX Plate

PACKAGED TOGETHER WITH A

Rebuilt RE-NU Assembly

MATCHED • MATED • TESTED

BALANCED • COMPLETE

CLUTCH UNITS

Cost the Same . . .

. . . although you pay only the *regular* price for the new Accurate Powerflex clutch plate and the rebuilt Re-Nu assembly, you get the *PLUS VALUES* of a matched, mated, tested, balanced, complete clutch unit at *no extra cost!*

Write for FREE Catalog & Prices!

EXCHANGED OR SOLD OUTRIGHT!
FOR ALL POPULAR CARS AND TRUCKS

GET IT FROM YOUR JOBBER

Accurate PARTS MFG. CO. 12435 Euclid Ave. Cleveland 6, Ohio

MANUFACTURERS OF THE POWERFLEX CLUTCH PLATE

REPLACEMENT UNIT CO. 1505 Rockwell Ave. Cleveland 14, Ohio

REBUILDERS OF GUARANTEED CLUTCH ASSEMBLIES

Maryland Road Test

The intensive road tests (See p. 116) in southern Maryland, originally slated for May 15, have been delayed because the eight test vehicles did not arrive on time.

The tests, which aim to determine the effect of trucks on concrete pavement, will include single axle loadings of 18,000 and 22,400 lb per axle, and tandem loadings of 32,000 and 44,800 lb. These vehicles will operate on a 24-hr schedule over a 1.1 mile section of route U. S. 301, which was paved in 1941 and is considered in good condition.

An outgrowth of the winter meeting of highway officials of eastern and central states, these tests are being conducted by the Bureau of Public Roads under the direction of Highway Engineer A. Taragin. Full details will be published in the July issue.

Good and Bad Reading

There's been a bumper crop of stories of the trucking industry, in the general magazines of late. "The Gentle Truckers" in *Fortune* for May is a good one, filled with well-known personalities. Also, in May, the *American Magazine* had an excellent human interest story by Malcolm McLean—"Opportunity Begins at Home."

In June, the same publication has a very worthwhile article on the ridiculous

(TURN TO PAGE 188, PLEASE)

Herman's Cold Body

With a refrigerating unit installed under the hood, driven by the engine, this body, known as "Coldaire" permits the delivery of milk at 40 deg to the door. Built by the Herman Body Co., St. Louis, it can be installed in most makes of truck chassis

"he-man"

from RAM HEAD to BASE...a real truck drivers jack!

Hein-Werner HYDRAULIC JACKS

Built to stand up under heavy loads

You don't need to "baby" a Hein-Werner *hydraulic!* From ram-head to base—it's a real "truck driver's jack". It's fast, safe and sure.

Rugged . . . Built for heavy duty . . . Hein-Werner Jacks have extra-strength, pressure tested malleable iron base, handle socket and top nut to reinforce at points of greatest strain. Models of 30-ton and greater capacity have solid steel base.

Dependable . . . Every H-W Jack is factory tested at 1½ times rated capacity. Compare Hein-Werner with any other jack for quality and price . . . you'll be convinced it can't be beat. Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity.

THE HEIN-WERNER line of hydraulic jacks *is COMPLETE!* It includes "Bumper-Lift" Hydraulic Jacks for passenger cars . . . Under-Axle Jacks for trucks and buses . . . "Swift-Lift" and Service Jacks for shop use . . . Cylinder Sleeve Pullers . . . Push and Pull Hydraulic Jacks for body, fender and frame work . . . Ask your jobber, or write us, for details.

HEIN-WERNER

HEIN-WERNER CORPORATION • WAUKESHA • WISCONSIN

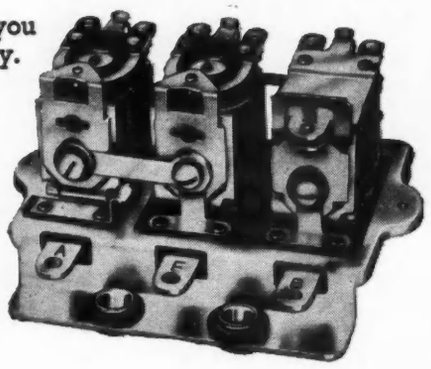
IGNITION REPLACEMENT PARTS • VOLTAGE REGULATORS
FUEL PUMPS • CARBURETOR KITS • AIR COOLED COILS

PEEDEE says..."TOPNOTCH TUNE-UP JOBS always go with this Trademark!"

● You are always sure of customer satisfaction when you use genuine P&D products. That's because they are manufactured entirely in our modern plant *from raw materials to finished products* to assure long, dependable service.

The P&D voltage regulator is typical of the expert automotive engineering, finest materials, and skilled workmanship that go into all P&D parts. See the large size insulated copper magnet wire that gives the windings maximum electrical stability. Next, notice the insulation. It's made of the best laminated phenolic plate available. And the contact points are the integral type . . . built to resist pitting. The riveting shank and contact proper are especially designed to provide minimum and unvarying electrical resistance between contact and mounting.

Yes sir — P&D parts are the best you can handle to keep customers happy. Write today for your free copy of the new Catalog No. 49 giving full information on P&D brushes, bushings, cut-outs, distributor products, etc. — the *one complete line* of electrical parts for all vehicles.



Turn Out Better Tune-up Jobs With PeeDee

P&D MANUFACTURING COMPANY, INC.
LONG ISLAND CITY 5, N. Y.

CCJ News Reports

Continued from Page 186

conflict of state traffic codes entitled "I'm Always in Wrong With Traffic Cops." There's nothing on size and weights, but plenty on driving procedures.

On the tough side is "Rape of Our Roads" in the June issue of *Readers Digest* —as bad as the name implies (see editorial, page 20). Also to Leslie Gould, financial writer for *Hearst* newspapers, goes credit for an incredibly one-sided attack.

Liberalized Truck Laws

From reports of the first legislative sessions of 1950 it is encouraging to note that favorable legislation has been enacted by many states to liberalize vehicle size and weight limitations. Significant motor vehicle equipment laws were also adopted.

Ariz. has adopted the weight limits based on recommendations of the American Association of State Highway Officials, permitting gross weights ranging from 32,000 lb if axle spacing is 4 ft, to 76,800 lb if extreme spacing is 56 ft or more. Miss. has increased weight limits based on tire sizes by permitting an additional 500 lb per wheel and 1,000 lb per axle; however, the maximum single axle weight limit of 18,000 lb is retained. R. I. has enacted gross weight limits of 56,000 lb. on 3-axle single units and tractor semitrailers, and 60,000 lb on tractor semitrailers with more than 3 axles; maximum single axle limit of 22,400 lb is not affected.

In R. I., length limits have been increased from 35 to 40 ft for single units and from 45 to 50 ft for combinations. Va. increased its single unit length limit from 33 to 35 ft, and both Va. and Miss. increased the length limit for buses with 3 or more axles from 35 to 40 ft. A similar increase for buses is pending in Mass.; another was unsuccessful in Ga.; and another was vetoed by Governor Dewey in N. Y.

Other new laws include one in Miss. which removes restrictions on the distance trucks may be ordered driven for weighing purposes, and one in Ky. repealing authority of the Commissioner of Highways to permit excess weights on highways necessary to the national defense. The Mass. Legislature is making a study of the enforceability of the size and weight laws, and N. Y. and Va. have increased the penalties for size and weight violations.

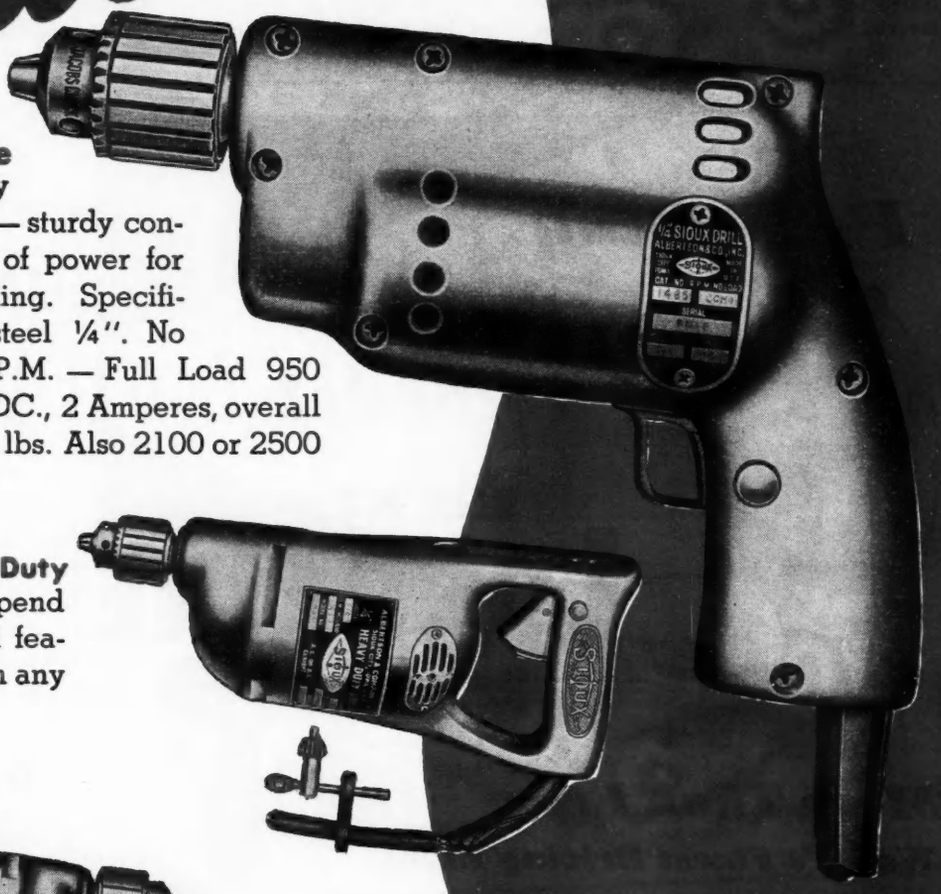
A recent introduction in the U. S. Congress (H.R. 7637) proposes to confer jurisdiction on the I.C.C. to supersede state size and weight laws which the Commission finds obstruct or hinder interstate commerce.

Adoption of Act V of the Uniform Code introduces new provisions in Ariz. and R. I. regulating clearance lamps, head lamps, auxiliary lamps, reflectors, brakes, mufflers and flares for disabled commercial vehicles.

(TURN TO PAGE 190, PLEASE)

for ROUGH and READY use

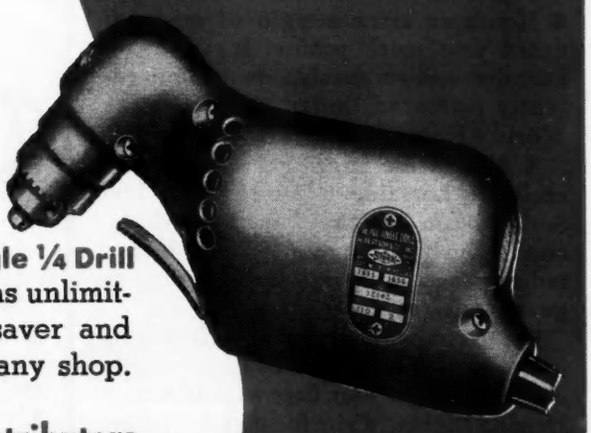
Sioux ELECTRIC DRILLS



No. 1485—WITH the PISTOL GRIP — Easy to use. Well balanced — sturdy construction — has plenty of power for general purpose drilling. Specifications: Capacity in steel ¼". No Load speed 1650 R.P.M. — Full Load 950 R.P.M.—115 Volt AC-DC., 2 Amperes, overall length 8"—weight 3½ lbs. Also 2100 or 2500 R.P.M. same price.

No. 1525—¼" Heavy Duty —A Drill you can depend upon. Has exceptional features. A proven asset in any shop.

No. 1550—½" Heavy Duty —Has unusual features. A bear for punishment. A *must* in any shop.



No. 1495 All Angle ¼ Drill —DIFFERENT—has unlimited uses. A time saver and money maker in any shop.

Sold only through authorized SIOUX Distributors

STANDARD THE WORLD OVER

ALBERTSON & CO., INC. SIOUX CITY, IOWA, U. S. A.

CCJ News Reports

Continued from Page 188

The use of "safety glazing material" is now permitted in R. I. and Va. A proposal to require safety glass in all glass replacement died in Ky. Mass. now includes windshields among motor vehicle equipment subject to inspection.

Color of lights and reflectors is now prescribed by Miss. law, and a N. Y. enactment prohibits other than white or yellow lights on the front of vehicle.

Directional signal devices are now required in Ky. whenever hand signals are not visible because of vehicle loading or construction. N. Y. enacted a law to provide that directional signals shall not be of the "mechanical" type, and a bill which would have permitted use of "semaphore-type" signals was vetoed by Governor Dewey.

Laws prescribing use of flares and reflector warning devices for disabled commercial vehicles were enacted in Ariz., and amended in Va. to permit use of reflector-type flares. A bill in Mass. to require all vehicles to carry such flares failed of enactment.

Loads on commercial vehicles in Md. must be secured so as to prevent shifting or leaking, under terms of a recent law. In Mo. municipalities, by ordinance, may regulate motor vehicle equipment pursuant to recently created authority. The use of mufflers without baffles or plates is now prohibited by a Va. enactment.

Super Safety Campaign Launched by TMTA

Meanwhile down in Tennessee, the Tennessee Motor Transport Association has opened an intensive safety campaign with the "Safety is No Accident" theme. Spurred by reports that 643 persons were killed in motor accidents in Tennessee in 1949, the Association is carrying a statewide advertising and publicity campaign through daily and weekly newspapers. In May alone, more than four and a half million advertisements featuring "do's and don'ts" for motorists were scheduled to appear.

Said to be one of the most extensive campaigns ever undertaken in the motor transport industry, it will eventually cover other subjects of common interest to the trucking industry and the public.

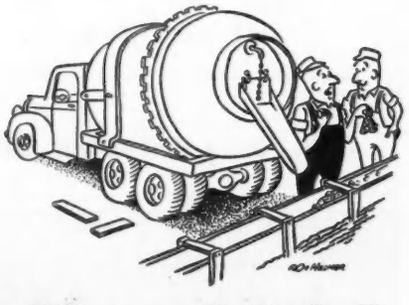
In the planning state for several months, the TMTA campaign recently received approval from the Association's board of directors and has been enthusiastically endorsed by its members. Funds for the campaign are being obtained through voluntary contributions from its members and allied industries.

Association President R. M. Crichton announced that the directors also approved an intensified Safety Training Program for employees of concerns belonging to the Association, to be carried on in conjunction with the newspaper campaign to the public.

1949 Safe Drivers

Winners of the 1949 Miles Per Accident contest, sponsored by the National Safety Council, were headed by Albert Winters (Inter-City Truck Div.) of the Permanente (Cal.) Cement Co., who accumulated 119,600 accident-free miles. Other first place winners with their respective division, company affiliations and accident-free miles are: Inter-City Bus Div., Charles Barton, Las Vegas (Nev.) Tonopah Reno Stage Line, 92,717 mi; City Truck Div., Elmer

(TURN TO PAGE 192, PLEASE)



"Will you pour, Mr. Macaffery?"

More Than Ever

World's Finest Driving Light

● Here's an extra margin of safety to guard your truck profits! It's the new Lorraine—more durable, more conveniently operated, more than ever the World's Finest Driving Light.

A flick of the fingertips controls the exclusive Lorraine Rotary Switch. The Sealed Beam Lamphead rolls smoothly, continuously, through a full 360-degree radius. Lorraine Wireless Construction guards against shorts.

For better vision on the highway, more convenience in town—*greater safety anywhere,* outfit your fleet with Lorraine Driving Lights. Write for detailed information and name of jobber nearest you.

New Lorraine Utility Light for Roof Mounting

Lamphead turns full 360-degrees both horizontally and vertically. Equipped with leak-proof bracket. Illuminates working areas to the front, rear, left, right or on the ground. Ideal for maintenance vehicles, wreckers, service vehicles, snowplows and utilities trucks.

APPLETON ELECTRIC COMPANY

Manufacturers of Appleton and Lorraine Spotlights

1724 WELLINGTON AVENUE · CHICAGO 13, ILLINOIS

PREVENT "Driver Dis-ease"

MONROE
E-Z Ride* Truck Seats *Eliminate Costly Fatigue and Sickness*

The painful pounding most road drivers take can be mighty costly to you.

Excessive vehicle jolting slows down an operator, physically and mentally, to a point where he's groggy and less efficient. Costly layoffs result from road shocks, when they cause disabling kidney, back and other driver ailments.

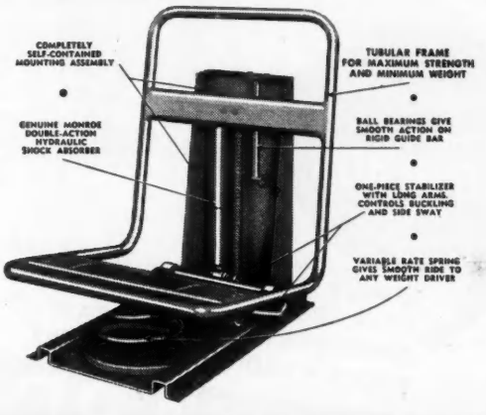
Monroe E-Z Ride Truck Seats are engineered to cushion the back-busting jolts that menace driver health, thus impairing efficiency of fleet operations. That's why they're such a sound investment for any fleet operator.

**Reg. U. S. Pat. Off.*

NEW LOWER PRICES now effective on all E-Z Ride Truck Seat models—easily installed in ½ hour or less.

For economy and safety, always replace with Monroe Airplane-Type Shock Absorbers — top choice of leading automotive engineers.

A Michigan firm, operating 43 trucks, reports E-Z Ride Seats have: lowered overtime by cutting ½ hour from one run alone; eliminated driver sickness traceable to vehicle jolting; cut out costs of formerly frequent seat rebuilding, and increased efficiency of trucking operations generally.


COMPLETELY SELF-CONTAINED MOUNTING ASSEMBLY
TUBULAR FRAME FOR MAXIMUM STRENGTH AND MINIMUM WEIGHT
GENUINE MONROE DOUBLE-ACTION HYDRAULIC SHOCK ABSORBER
BALL BEARINGS GIVE SMOOTH ACTION ON RIGID GUIDE BAR
ONE-PIECE STABILIZER WITH LONG ARMS CONTROLS BUCKLING AND SIDE SWAY
VARIABLE RATE SPRING GIVES SMOOTH RIDE TO ANY WEIGHT DRIVER

MONROE®

MONROE AUTO EQUIPMENT CO.

Monroe, Mich.—WORLD'S LARGEST MAKER OF RIDE CONTROL PRODUCTS

CCJ News Reports

Continued from Page 190

Burke, H. J. Heinz Co., Albany, N. Y., 30,035 mi; City Bus Div., John Kerchinske, Employers Transit Lines, Inc., Lorain, Ohio, 35,372 mi; Suburban Truck Div., Jack Heater, Holsum Bakery Co., Charleston, W. Va., 93,942 mi; Suburban Bus Div., J. C. Rutherford, Phoeniz (Ariz.) Transportation System, 58,392 mi; Taxicab Div., Merritt Pratt, North Chicago (Ill.) Cab Co., 47,881 mi; School Bus Div., Charles Teal, Ontario (Wis.) Public Schools, 22,930 mi; Salesmen Div., Joseph O'Connor, State Farm Mutual Auto Ins. Co., Bloomington, Ill., 44,035 mi.

Motor Freight Volume Increased

The volume of freight transported by motor carriers in March increased 16.9 per cent over February and 21 per cent over March, 1949, according to statistics compiled by the Department of Research of The American Trucking Assoc., Inc.

Comparable reports received by ATA from 326 carriers in 40 states showed these carriers transported an aggregate of 3,491,269 tons in March, as against 2,986,264 tons in February and 2,884,307 tons in March, 1949.

Approximately 77 per cent of all tonnage transported in the month was hauled by carriers of general freight. Transportation of petroleum products, accounting for about 15 per cent, and carriers of iron and steel hauled about 3 per cent of the total tonnage. About 5 per cent of the total tonnage reported consisted of miscellaneous commodities.

Industrial Notes

The Chicago district office of the **Petroleum Chemicals Div., E. I. du Pont de Nemours & Co., Inc.**, announces that its new offices are now located in the Willoughby Tower, 8 South Michigan Blvd., Chicago, Ill.

The Ford dealership in Yonkers, N. Y., has been purchased by George E. Moore and is continuing operations as the Ford, Yonkers, Inc., it has been announced by Nelson F. Bowe, New York district manager for **Ford Div. of Ford Motor Co.**

Both general offices and manufacturing operations of **Purolator Products, Inc.**, are now located in the new plant at 970 New Brunswick Ave., Rahway, N. J.

The entire 22nd floor of the new Mutual Life building at Broadway and 55th St., New York City, has been leased to the **Brown Equipment & Mfg. Co., Inc.**

The AP Parts Corp. has just completed construction of a new one story insulated stell building of advanced design, covering approximately 13,000 square feet, to provide for additional production of tail and exhaust pipes.

John O. Huse, sales manager, **Chrysler Motor Parts Corp.** announced that the newest addition to the MoPar line of parts and accessories is the Porcelainize process for applying a protective lustre to car finishes.

The **Mercury Brake Products Co.**, Chicago, announces the appointment of the **Gabriel Distributing Co.** as its new sales representative in the Chicago area.

Alvania, a new multi-purpose industrial grease is now available in larger quantities, it was announced by the **Shell Oil Co.**

The complete line of Rowland underchassis parts is now available at the **Manufacturers Automotive Warehouse Co.**, Boston, Mass.

The Pennzoil Co. has awarded to **The M. W. Kellogg Co.** the contract for a propane-deresining and resin-fractionating unit at its present oil lube plant at Rouseville, Pa.

The **Airtex Automotive Div.** of **Chefford Master Mfg. Co.**, Fairfield, Ill., announced the appointment of **E. L. Mullen Co.** of Minneapolis, Minn., as its sales representative in the upper Mid-West area.

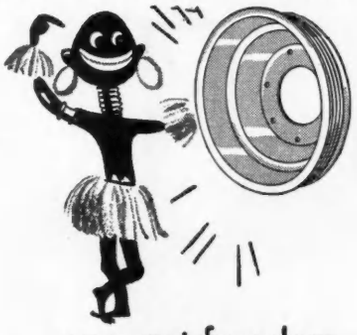
Harvey Berghaus, vice president, announces the following sales changes for the **American Coach & Body Co.**, Cleveland, Ohio. Two new district sales offices have been opened, in Chicago, Ill., and Tulsa, Okla. The former is in charge of Ruben Bauer, sales manager for the Midwest Div. The latter is headed by Homer Feyen, sales manager of the Southwestern Div.

The Ideal SLAM DOOR LOCK
...FOR LIGHT PANEL DOORS
SIDE VIEW OF TAPERED BOLT
No. 5602-1/2. Door Holder.
For holding doors open against sides or rear of body. Ideally suited for body shown here.
No. 565693 'SLAMTITE' Medium Duty
• This time proved door lock rates "ace high" with body builders everywhere for use on light panel doors.
Simply "slam" both doors and they're securely locked.
Tapered bolts on locks and Finger Hook Latch bolt pull the doors up tight and hold them firmly in a "rattleproof" position.
Dependable service is assured for a long period of time.
Write for full particulars.
Lock can be furnished with either right or left hand tumbler action. Illustration shows right hand.
Investigate THESE NEW "LONG RUN" ITEMS
HINGES • LATCHES • DOOR IRONS • DOOR CONTROLS
SEAT IRONS • LOCK HANDLES • SEAT PEDESTALS
REFRIGERATOR LOCKS • PANEL DOOR LOCKS • VAN BODY
LOCKS • SLIDING DOOR LOCKS • LADDER HOLDERS • ETC.
EBERHARD Long Run
TRUCK BODY FITTINGS
E
EBERHARD MANUFACTURING CO.
Division of the Eastern Malleable Iron Co.
EVARTS AVE.
CLEVELAND, OHIO

Drums last longer with Johns-Manville Brake Blocks...

...You get reduced heat checking

...you get low drum wear



...you get freedom from scoring

...you get quiet braking

...and you get dependably smooth STOPS, too!

Used on the nation's foremost fleet operations—covering more ground, getting harder service, controlling heavier loads—the new J-M Brake Block formulation has withstood the test against all comers. Here's why:

... The result of a scientifically balanced formula that wears slowly, evenly, J-M Brake Blocks have every feature essential to efficient brake operation ... for preventing costly scoring or checking of drum surfaces ... for giving longest brake block life with the least amount of trouble.

Proved on the Heat Check Analyzer—an exclusive J-M laboratory device for checking both block life and drum life ... proved by hundreds of thousands of miles of actual road use on bus, truck, and other fleets ... they'll give you fewer pull-ins, better life of both blocks and drums, better mileage at lower operating cost. *Test them on your next pull-in!*

PRODUCERS OF THE FAMOUS 4-STAR FLEET TESTED SETS

Johns-Manville ASBESTOS FRICTION MATERIALS

THE *FIRST* NAME IN ASBESTOS BRAKE LININGS

Bonney's Tool "Transport"

In operation for several months, this truck "transports" a complete line of tools for sale to the mechanic. This tool "headquarters" on wheels, developed by the Bonney Forge & Tool Works, owned and operated by the distributor, has sufficient space for a display of other tools to supplement the Bonney line

MOBO AVIATION GASKET MAKER

NEW! IMPROVED

Assures pressure-proof, leak-proof seals

- Impervious to hot or cold oil, water, gasoline, alcohol, glycerine, etc., at extreme temperatures
- Non-corrosive in combination with all metals and alloys
- Permits repeated dis-assembly without damage to parts
- Replaces gaskets on machine surfaces
- Remains tacky . . . never hardens

Resists tremendous pressure. Heat-proof, oil-proof, gas-proof, water proof, comes in paste form in two consistencies:

No. 1 — Dries fast, sets hard
No. 2 — Dries slowly, sets semi-hard

Made from the purest gums. Stands up under long service, never crumbling or becoming brittle. Not affected by water, oil, heat or gasoline.

Contact Your MOBO Jobber Today!

JOHN T. STANLEY COMPANY, INC.
(Mobo Division)

642 West 30th Street **New York 1, New York**

CCJ News Reports

Continued from Page 192

Vehicle Sales Hit High

Factory sales of new motor vehicles hit an all-time high in the first quarter of 1950, the Automobile Mfrs. Assn. reports.

The first three months output of 1,635,966 new motor vehicles topped last year's production for the same period by 142,000 units, or 19 per cent. It exceeded the industry's best previous first quarter in 1941 by 10 per cent.

Domestic factory sales of motor trucks were about equal with first quarter sales a year ago. Total truck factory sales declined because of reduced exports with first quarter exports of new passenger cars, trucks and buses amounting to about 3 per cent of production, as compared to 10% prewar.

Tire Patent to Lee Co.

Patent No. 2,505,137, covering the basic mechanical features of the Lee Winter-Summer tire, was granted to A. H. Nellen, vice president in charge of the Lee Rubber & Tire Corp.'s development and research and assigned exclusively to the corporation.

The Winter-Summer tire is made up of 275 odd-shaped cleats, which, staggered across the tread, are designed to make chains unnecessary for most Winter operations.

General Manager for WMCA

Mr. John P. Varda, formerly associated with the Swedish-American Pulp Corp., Pulptex A.G. Switzerland and Tegefors Verken, Sweden, assumed the position of General Manager of the Wisconsin Motor Carriers Association on May 20, 1950.

Mr. Varda, a former member of the Wisconsin Legislature, recently returned from Europe to take over his new position.

NTTC Elect New Officers

At their recent mid-year meeting, the National Tank Truck Carriers, Inc., elected Frank Baird-Smith, Refiners Transport & Terminal Corp., Detroit, president for the coming year. L. R. Guerra, Cantlay & Tanzóla, Inc., Los Angeles, and W. M. Pritchard, Coastal Tank Lines, Inc., York, Pa., were chosen vice presidents. Emanuel Alboum and C. Austin Sutherland were re-elected treasurer and secretary, respectively.

The Board of Directors voted to divide the region comprised of N. Y., Pa., and N. J. into three regions, thus adding two members to the board of directors. The membership approved a recommendation of the Convention Site Committee that the Mid-Year Meeting next year be held at the Boca Raton Club, Boca Raton, Fla. Dates for the meeting were tentatively set at April 5-10, 1951.

END

Please resume you reading on P. 31

There's a **BRADEN** Distributor Near You for . . .

Fast Service

Braden Winch distributors are strategically located to adequately serve all winch operators in every state in the Union. These distributors are selected because of their ability to give the best possible sales and service help to users of truck winches. Look in the yellow pages of your telephone book or contact the Braden Factory for the name of your nearest Braden distributor.

BRADEN
MODEL M6-15B
Safe Working Load; 12,000 lbs.
Equipped with the famous OIL COOLED, FULLY ADJUSTABLE, AUTOMATIC SAFETY BRAKE.

BUY BRADEN—They are Safer

BRADEN WINCH COMPANY — **TULSA 1,** Oklahoma

Post Office Box 1709

BRADEN *Winches*

New Product Descriptions

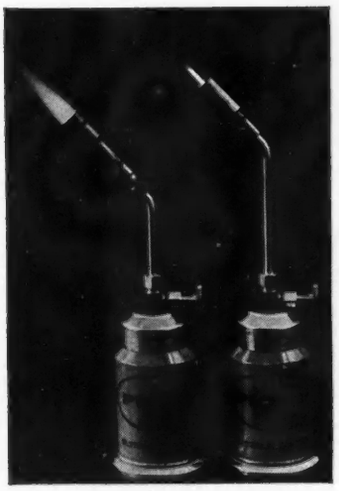
Continued from Page 84

ties. Dual pneumatic traction tires are mounted on a "dead" axle which supports the chassis and fork load. Lifting and tilting hydraulic units are oversize. Attachments, such as shovels, special forks and fork extensions, power spreaders, rotary aprons for forks and special winches and crane booms are available. Silent Hoist & Crane Co., Brooklyn, N. Y.

P195. Hand Torch

A new hand torch which lights instantly, burns with a clean, blue, hot flame, does away with all pouring, pumping, and priming. It utilizes a disposable can of "Prepo" fuel. When emptied, it is removed from the torch and replaced by a new, full can of fuel.

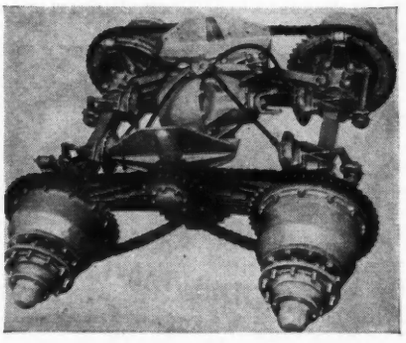
The new torch comes equipped with two easily changed burning tips. The largest tip throws a long, broad flame for work where a lot of heat is required



quickly. The other tip has a long pinpoint flame which is ideal for soldering. Pressure Products Corp., Chicago, Ill.

P196. Center Chain Drives

These C-B center chain drives are built in five sizes for 8-, 10-, 12-, 16- and 20-ton capacity. They are a complete package unit, readily installed on trucks. The overall width is held to minimum and it is kept in alignment through adjustable radius rods, springs and rollers and pads; torsionally balanced with brake torque taken through springs and radius rods with little or no weight transfer when brakes are applied. Cook Bros. Equipment Co., Los Angeles, Calif.



P197. Stud and Bolt Locks

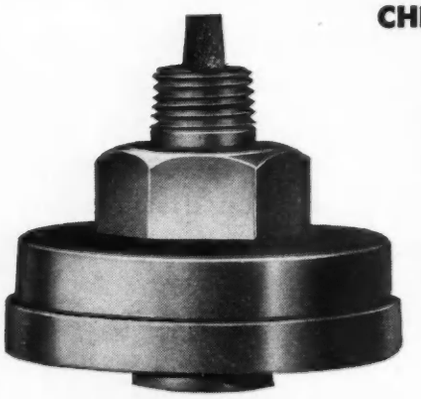
The stud or bolt lock consists of an elliptical spring steel retainer which is forced into circular shape, creating rigid locking pressure on the threads.

(TURN TO PAGE 198, PLEASE)

AT LAST! A New, Foolproof Automatic Moisture Eliminator

DRAIN MASTER

Keeps Air Brake Systems DRY



ACTUAL SIZE
Automotive Model "A"
(Model "S" for industrial uses)

CHECK THESE ADVANTAGES

- ✔ POSITIVE ACTING—Ejects All Water OUT
- ✔ FULLY AUTOMATIC—Eliminates Manual Draining
- ✔ EASY TO INSTALL—Takes Only a Matter of Minutes
- ✔ COMPACT ✔ EFFICIENT
- ✔ LOWERS OPERATING COSTS
- ✔ PREVENTS RUST
- ✔ REDUCES REPAIR BILLS
- ✔ PROVIDES EXTRA SAFETY

GET POSITIVE PROOF!

The installation of one Drain Master will convince you that it is the answer to your moisture problems. Write or wire today.

MANUFACTURER'S GUARANTEE—no one has ever been charged for the repair of a Drain Master.

Master Equipment Sales
BOX 55, DAYTON 1, OHIO

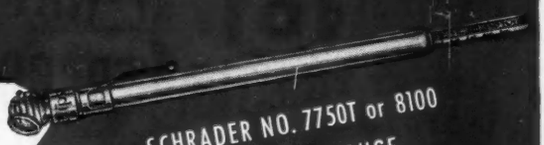
For *EXTRA* Operating Efficiency
...There's a Gauge For *EVERY* Job!

Schrader Gauges are important tools—*to YOU*. They help you get more operating efficiency from every vehicle . . . more miles from every tire . . . more profits, by helping prevent expensive roadside flats and lost truck hours. Yet their cost is trifling in contrast to the thousands of dollars of tire protection!

Start NOW to make your trucks more efficient—cut down on unnecessary truck stoppages—cut down on time and tire mileage losses. In the *complete* Schrader line there is a gauge for EVERY job—*a job for every gauge.*

Sturdy and compact, inexpensive and accurate, the 5050 gauge is sound equipment to be carried with light trucks, taxi cabs, and station wagons.

SCHRADER NO. 5050 TIRE GAUGE FOR LIGHT TRUCKS



Your drivers may prefer this streamlined pencil type gauge with handy pocket clip. Carried in the pocket, it is handy at all times.

SCHRADER NO. 7750T or 8100 PENCIL TYPE GAUGE

7188BH all-range, heavy-duty gauge, with the long angle extension, is right for all trucks and buses. Known throughout the world as the standard of accuracy and efficiency, it is specified equipment for the armed services, Schrader No. 6060 is the same as No. 7188BH only with 2" extension and single foot.

SCHRADER NO. 7188BH ALL SERVICE TIRE GAUGE (or #6060)

This is the gauge with AUTHORITY! Use it regularly to check the accuracy of other gauges. Built to the highest degree of commercial accuracy.

SCHRADER NO. 8106B TRUTEST SPECIAL GAUGE

Farm owners of tractors find the 9350 gauge a "must" in proper ballasting of tires with water.

SCHRADER NO. 9350 TRACTOR TIRE GAUGE

THE WORLD STANDARD
Schrader
VALVES
FOR EQUIPMENT AND REPLACEMENT

A. SCHRADER'S SON
BROOKLYN 17, NEW YORK
Division of Scovill Manufacturing Company, Incorporated

Gauge Your Way to Greater Truck Efficiency
MORE PROFITS

WORLD'S LARGEST MANUFACTURER OF TIRE VALVES, GAUGES AND ACCESSORIES

New Products

Continued from Page 196

The stud or bolt may be adjusted to any position and will remain in position regardless of severe vibration. The retainer floats on a counterbore and carries no load. All tension or compression stress load is carried by threads in the tapped hole. The stud or bolt can be applied repeatedly without distortion to retainer or bolt. Security Locknut Corp., Chicago, Ill.

P198. Portable Hand Lamp

New Big Beam Junior, portable electric hand lamp, is powered by one standard 6-volt lantern battery. Lamp-to-battery contacts are pressure type and permit battery replacement in 10 sec. Combination of 4-in. lamphead, parabolic reflector, bulb and heavy glass convex lens gives spot or spread light. Lamphead and handle chrome finished. Battery case with hinged cover, weatherproof and rustproof, is finished in red baked enamel. Weight is 48 in. with battery. U-C Lite Mfg. Co., Chicago, Ill.

P199. Loading Ramp

"Easyload," a transfer plate, is reinforced checkered Jal-Tread floor plate housed in a simple built-in rack in the loading platform. When not in use, the plate is a part of the floor. By means of lever arms, it is quickly lifted and projected into a loading position on a truck. During operation, the plate is held firmly in position by two pivot arms that prevent it from slipping or shifting. Wm. Christensen Co., Inc., York, Pa.

YES...

BERG IS MANUFACTURING the NEW 7-WAY ELECTRIC TRACTOR-TRAILER CONNECTORS

Just adopted by your A.T.A. as the trucking industry's standard for universal interchangeability.

As before, all Berg connectors comply with all I.C.C. regulations.

1ST BERG MANUFACTURING WILL BE WITH THE FINEST!

"the best costs no more"

WRITE TODAY FOR COMPLETE DETAILS

Berg MANUFACTURING & SALES CO.

18 E. 18th ST. • CHICAGO 16, ILLINOIS

The Manufacturers of "Standard Equipment Approved" Tractor-Trailer Connectors • Multi-Conductor Electric Cables • Loom • Power Brake Parts

Late Flashes

Wood-Williams-Copp Mfg. Co., of Ypsilanti, Mich., has recently gone into production with the Williams Automatic Brake for use with its Red Arrow Tow Bar.

B&M Siren Mfg. Co., Los Angeles, offer sirens for every signal and warning use, electric and motor driven, friction and general alarm.

Lostro Minute Oil Changer, consisting of a motor in a housing, high vacuum pump, tubes, electric cord and hose is being offered by **Lostro, Inc.**, Newtown, Ohio.

Fast action handling loads weighing up to 4000 lb is a feature of a new model medium-weight power fork truck announced by **Elwell-Parker Electric Co.**, Cleveland, Ohio.

An improved crankcase oil for diesel and gasoline engines, which will combat sludge and engine deposits, even when used with fuels containing up to 1 per cent sulphur, has been announced by the **D-A Lubricant Co., Inc.**, Indianapolis, Ind.

Amaza Laboratories, Cleveland, Ohio, has developed a new, industrial Di-Phase Hand Cleaner and a new industrial dispenser to dispense E-Z-Go Hand Cleaner.

The **Automotive Div. of Wagner Electric Corp.** announces the availability of a bleeder screw assortment, Wagner part number FL-278.

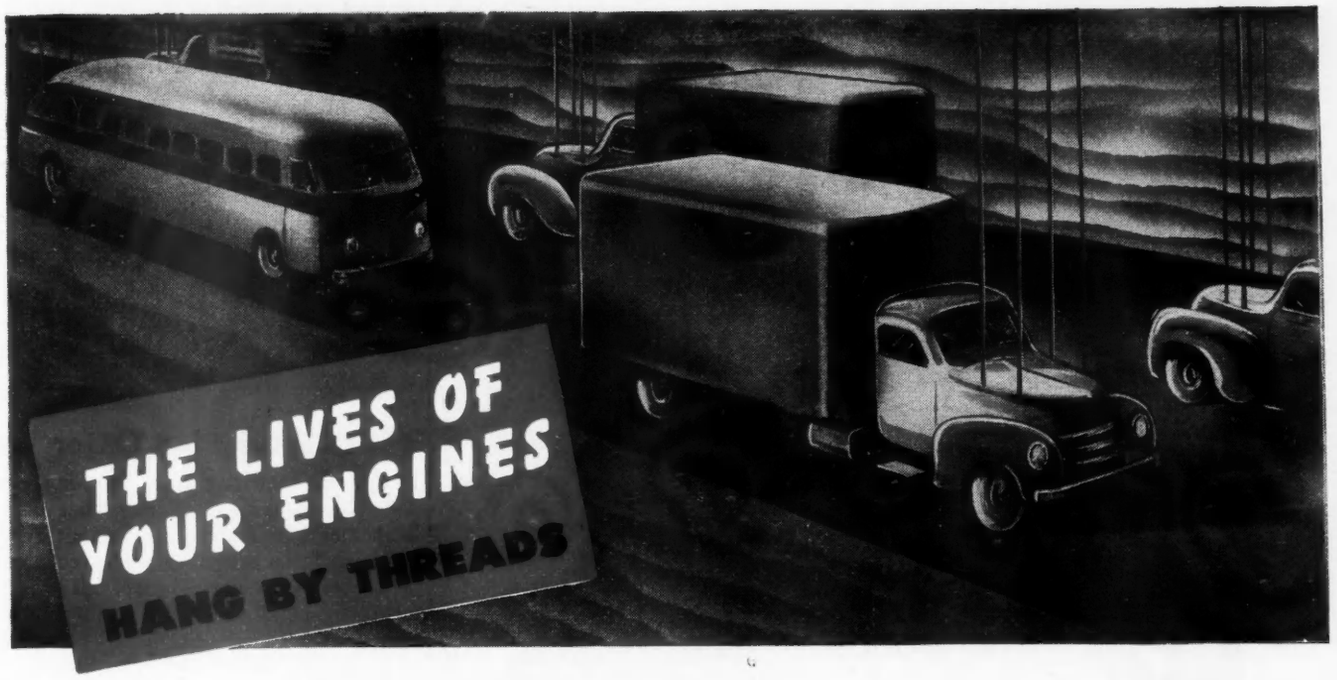
A new brake lining called "Seg-Mold" has just been developed and placed on the market by **National Brake Block Corp.**, New York City.

The Vapotester, an engineered instrument for the detection of combustible gases and vapors is being offered by the **Davis Emergency Equipment Co., Inc.**, Newark, N. J.

P100. Metal Filler

The new material, "3M" brand metal filler, is a paste-like material recommended for use in filling rust pits, dents, scratches and holes in autobody

(TURN TO PAGE 200, PLEASE)

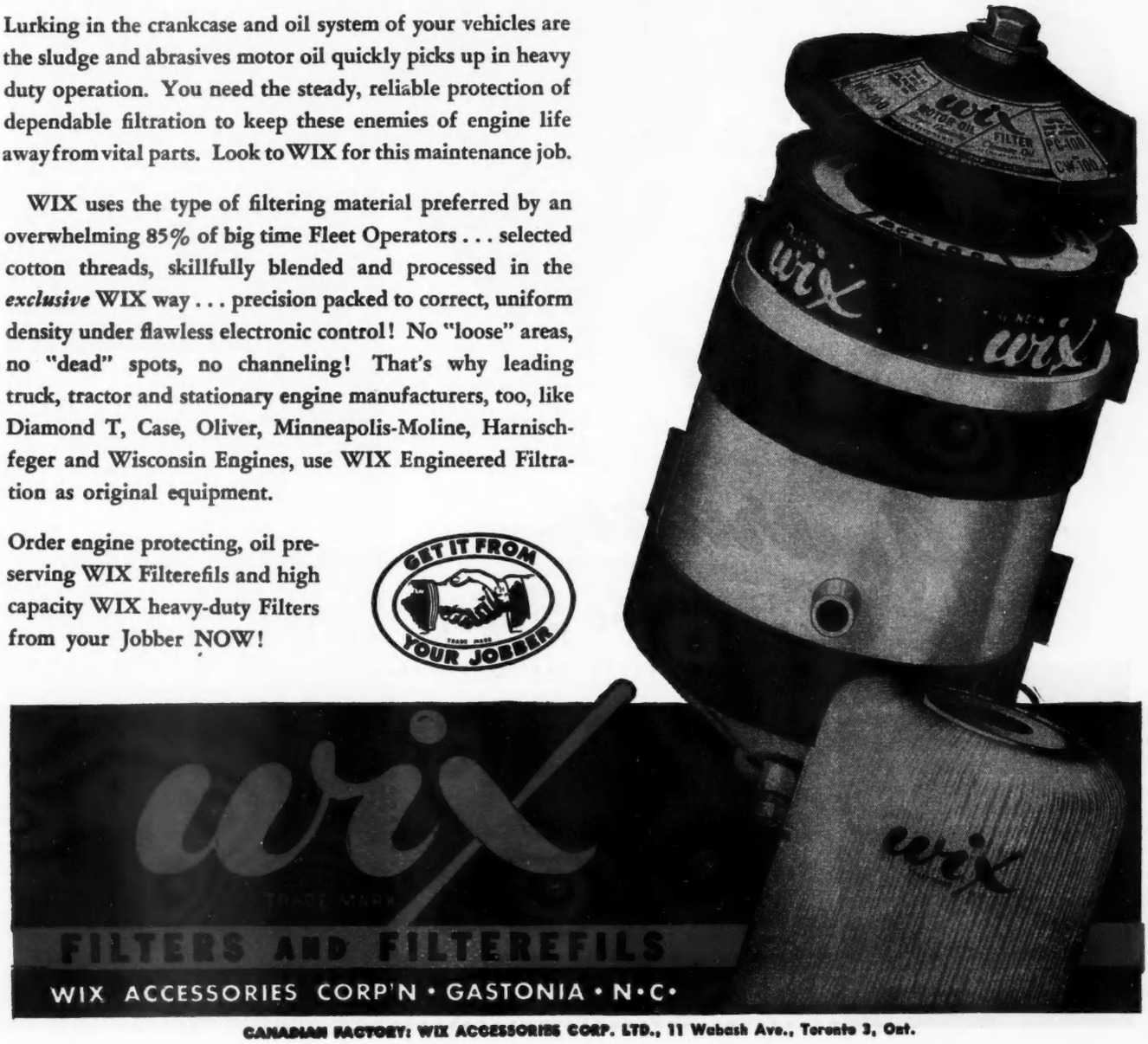


Lurking in the crankcase and oil system of your vehicles are the sludge and abrasives motor oil quickly picks up in heavy duty operation. You need the steady, reliable protection of dependable filtration to keep these enemies of engine life away from vital parts. Look to WIX for this maintenance job.

WIX uses the type of filtering material preferred by an overwhelming 85% of big time Fleet Operators . . . selected cotton threads, skillfully blended and processed in the *exclusive* WIX way . . . precision packed to correct, uniform density under flawless electronic control! No "loose" areas, no "dead" spots, no channeling! That's why leading truck, tractor and stationary engine manufacturers, too, like Diamond T, Case, Oliver, Minneapolis-Moline, Harnischfeger and Wisconsin Engines, use WIX Engineered Filtration as original equipment.

Order engine protecting, oil preserving WIX Filterefils and high capacity WIX heavy-duty Filters from your Jobber NOW!

GET IT FROM YOUR JOBBER



CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 11 Wabash Ave., Toronto 3, Ont.

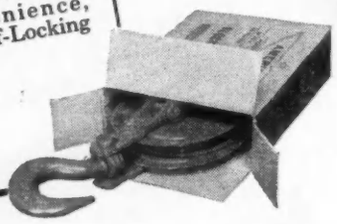
In Snatch Blocks... look for SAFETY FIRST!

A man *can't* rig carelessly, with an AMERICAN Self-Locking Snatch Block. He rigs the block in only 5 seconds—accidental opening is impossible. Lay in the rope, close the plate and the block is positively locked!

NO GUESSWORK
Size and capacity are plainly embossed on the steel side plate of each AMERICAN Snatch Block. You know the safe capacity at a glance.

LOOK
for the AMERICAN trademark on the next block you buy. You get the benefit of over half a century's manufacturing experience in the hoisting industry.

PACKAGED
for your convenience, AMERICAN Self-Locking Snatch Blocks are *kept new* in sealed corrugated cartons until you're ready to use them.



Say **American** *...and be Safe!*

AMERICAN blocks are *standard equipment* in the crane industry. They *have* to be strong and tough. You get the same rugged dependability throughout the full line of AMERICAN wire rope blocks. Sold by distributors everywhere . . . capacities from 1½ to 250 tons.

MAIL THE COUPON!

American Hoist
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St. Paul 1, Minnesota

● Please send free catalog on AMERICAN Blocks and Sheaves.

Name_____
Company_____
Address_____
City_____ Zone____ State_____

New Products

Continued from Page 198

metal. Used like body solder, without heat or tinning compounds, it is said to have cold shock resistance at temperatures down to —30 degrees F. It was tested for heat resistance at temperatures up to 425 degrees F. The filler is applied by squeegee or knife, needs no primer, can be worked repeatedly and can be sanded. Minnesota Mining & Mfg. Co., St. Paul, Minn.

P101. Spark Plug Tester

For the cleaning and checking of spark plugs the 600 Series service unit embodies four features, lower cost and upkeep, faster cleaning and checking, easier access to internal parts and easier replacement of abrasives.

The standard units use 115 volt, 50/60 cycle current. Compressed air requirements are 120 to 180 psi. The unit is 20-in. wide and 14-in. deep. Champion Spark Plug Co., Toledo, Ohio.

P102. Light Truck Body

The "Carry-All" utility body models B-750 and B-910 fit all standard ½-, ¾- and 1-ton truck chassis. Design provides rugged heavy-gauge steel construction and a unique bridge type underbody. The 48½-in. width of the offset-reinforced non-skid 16-gauge floor and wide compartments (set out over the wheels) provides greater payload capacity. Morrison Steel Products, Inc., Buffalo, N. Y.

P103. Stud Wrench

This stud wrench turns on its own center and is not eccentric. It tightens as pressure is applied. The wrench is released simply by turning the knurled collar. Its maximum diameter is 2 in.

(TURN TO PAGE 202, PLEASE)

Roadside Safety

WITHOUT FUEL OR FIRE!

DIETZ REFLECTOR FLARES

DIETZ Reflector Flares warn approaching traffic the instant you put them on the road . . . nothing to light, no switches, no fuel! Unbreakable Stimsonite lenses reflect a signal visible ½ mile in either direction. And sharp-edged metal legs really GRIP the road! This flare won't go out, fall over or skid in winds up to 50 miles per hour and more! DIETZ No. 323 Reflector Flare Kit contains 3 Reflector Flares in a compact kit box, measuring only 9⅛" x 5⅛" x 4½". DIETZ No. 323-F Reflector Flare Kit contains, in addition, 2 flags and 2 metal staffs. For safety's sake, order from your Jobber TODAY! R. E. Dietz Company, 60 Laight Street, New York 13, N. Y.

NEW
DIETZ PRODUCTS

Fresh from the drawing boards of DIETZ designers! These new items, and many others, make DIETZ the most complete safety lighting equipment line. Safety is built into every one! Consult your Catalog . . . ask your Jobber for full details!

No. 820-DC Sealed Beam Headlight
No. 410-CA Sealed Beam Foglight
No. 310 Back-Up Light
No. 757 "Volunteer" Fire Extinguisher
No. 80-C Streamlined Clearance & Marker Light
No. 64-5C Extension Mirror

GET IT FROM YOUR JOBBER

TESTED BY THE ELECTRICAL TESTING LABORATORIES - ICC & STATE APPROVED

OVER A CENTURY OF *Safety* LIGHTING · DIETZ

New Products

Continued from Page 200

and can be operated with either ½-in. drive socket handle or a 1-in. open end box wrench. Jaw teeth built of special alloy steel are milled for either right or left hand turns. Owatonna Tool Co., Owatonna, Minn.

P104. Battery Chargers

Two new fast battery chargers, a standard model for 6-volt batteries and a heavy-duty model for 6 and 12-volt batteries, feature an automatic switch-over which eliminates "surface charging" or "blooming," 4 settings for fast and medium charging, 4 settings for slow charging, low current consumption through the use of selenium rectifier plates, automatic resetting circuit breakers protecting both AC and DC circuits, and a fool-proof forced air cooling system. Sun Electric Corp., Chicago, Il.

P105. Canopy Cover

The new Utility Pic-up Poncho, a waterproof canvas cover for ½ and ¾-ton utility bodies, fits on a heavy gauge channel steel frame. Special flareboard mounting adapters attach to top of storage compartment over strip of Neoprene cork which insures permanent, watertight installation. The cover telescopes into a 9-in. space when not in use. Harben, Inc., Dallas, Texas.

P106. Service Jacks

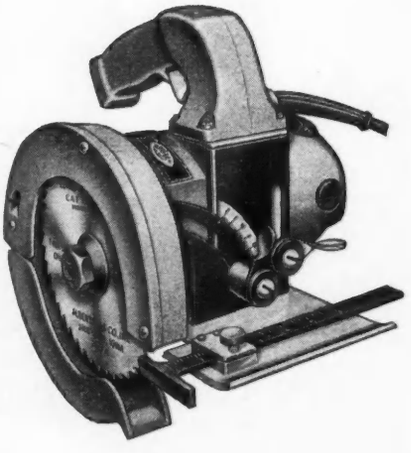
These service jacks are built in four models for load lifting through 10 tons. All jacks feature: heavy steel plate frames; precision built jacking unit protected against overloads; patented cam action release mechanism; roller contact between handle and pump piston; ball bearing casters and roller bearing wheels. The Joyce-Cridland Co., Dayton, Ohio.

P107. Dump Conversion

The new accessory converts ½-ton, ¾-ton, and 1-ton pickups into efficient dump trucks. The main elements are: a clutch-type hydraulic pump, fan-belt powered, operated only when dumping; steel understructure for mounting under the pickup body; and twin cylinder hydraulic hoist rams. Featured is rapid unloading, handled from the cab of the truck by the clutch operated by dashboard control. Hercules Steel Products Corp., Galion, Ohio.

P108. Hand Saw

An electric hand saw with a 2-in. capacity, features modern design, helical gear drive and adjustable rip scale guide. Using a 6¼-in. blade, it has a



vertical adjustment up to 2 in. and bevel cuts to 45 degrees to depth of 1⅜ in. Operates on 115 volt AC or DC. Weight is 14½ lb. Sioux Tools, Albertson & Co., Inc., Sioux City, Iowa.

(TURN TO PAGE 204, PLEASE)

EIS Super 40
Hydraulic Brake Fluid

Met and surpassed SAE specifications 8 years before they were made. In 1939, we improved our then called Super Duty — introduced it in 1940 as Super 40 — Tomorrow's Brake Fluid — Today! (SAE specifications were adopted in Dec. 1946.)

EIS Super-40 and Super-50
BRAKE FLUIDS
meet or exceed SAE specifications

They're performance proved for quality and safety for over 17 years. EIS Super Brake Fluids are unaffected by extremes in temperature . . . prevents vapor lock . . . will not corrode metal or rubber. They're non-evaporating, contain no acid or water. Mix perfectly with all other approved brake fluids.

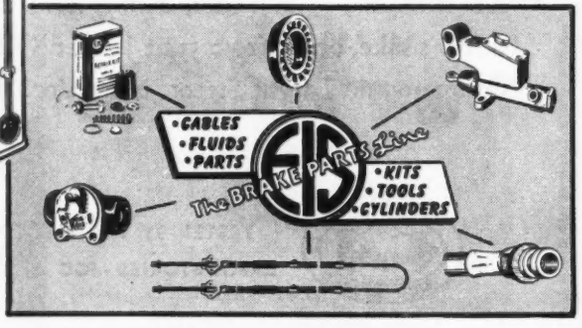
You can place the same trust and confidence in EIS brake fluids as you have in EIS widely accepted line of Hydraulic Brake Parts.

PACKAGED TO MEET EVERY NEED

Merchandised in a complete range of sizes from 3 oz. refills to 55 gal. drums.

S. A. E. Moderate

S. A. E. Heavy-Duty



Ask your jobber or write direct

EIS AUTOMOTIVE CORP., Middletown, Conn.

Thor PORTABLE ELECTRIC IMPACT WRENCHES

- Most powerful built—deliver two hard wallops on every spindle revolution.
- No torque reaction from unique Thor impact mechanism.
- Motor runs continuously—even when spindle is stopped—cannot stall or burn out!

No job is too hard—or too easy—for these great Thor Silver Line ⅜" and ⅝" Impact Wrenches. Try them—*on any job*—nut running, stud removing, drilling, tapping, screwdriving . . . these versatile tools outperform everything in their class!

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Drill Stands
Fender Hammers
Grinders
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Nut Setters
Polishers
Sanders
Saws
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Tappers
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INDEPENDENT PNEUMATIC TOOL CO.
AURORA. ILLINOIS

Write For FREE Electric Tool Catalog E-2

GET IT FROM YOUR JOBBER

Thor TOOLS

ASK FOR THE Silver Line

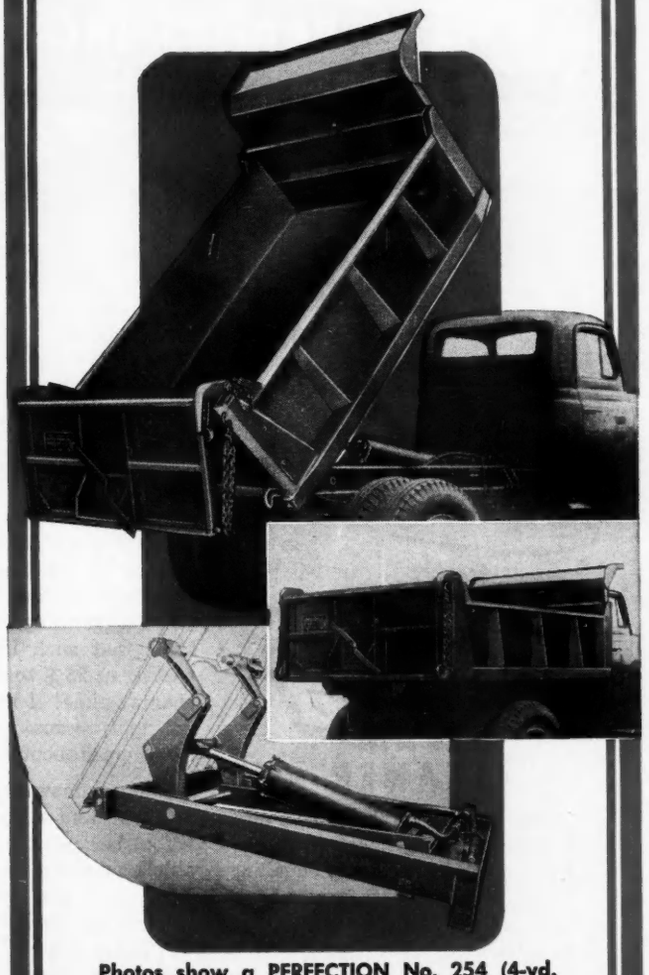
PERFECTION

(THE NAME TO REMEMBER)

BODIES & HOISTS

32 YEARS OF KNOWING HOW!

Dealers, Fleet owners, Contractors, Highway and Street Departments who sell and use Perfection Bodies and Hoists know that we know how to build bodies that stand the gaff — Bodies that are engineered for the job — Hoists that will lift more than we say they will lift and do it longer and faster and steadier and more safely than any other units of the same rating. Our repeat order business is our biggest business.



Photos show a PERFECTION No. 254 (4-yd. capacity) Dump Body with No. 725 Hydraulic Hoist. Write for complete information.

THE PERFECTION STEEL BODY CO.
GALION, OHIO

PERFECTION TRUCK BODIES and HYDRAULIC HOISTS

THE MOST PRACTICAL AND ECONOMICAL UNITS IN THE WORLD

New Products

Continued from Page 202

P109. Carburetor

Tillotson Model YR-3 concentric downdraft replacement carburetor for 1941 to 1950 6-cylinder Ford engines, features three main adjustments that give proper carburetion at all engine speeds.

A double venturi for high velocity fuel atomization, automatic vacuum operated power jet, positive action acceleration pump, and balanced design to prevent wasted fuel consumption resulting from dirty air cleaner are incorporated. Tillotson Mfg. Co., Toledo, Ohio.

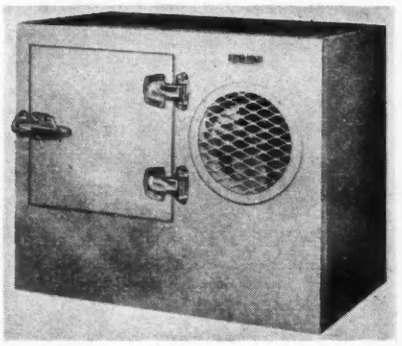
P110. Speed Governor

Called Speedmaster, this road speed governor can be adjusted and sealed, to hold a car or truck within any desired limit from 30 to 60 mph. The unit works through a pick-up interposed between the speedometer and transmission. When the vehicle attains a predetermined speed, an electrical impulse is sent to a solenoid which turns a butterfly valve installed between the carburetor and intake manifold. The valve automatically regulates the gasoline supply to the cylinders so that the permitted speed may be maintained but not exceeded.

The device works at the same mph rate, in whatever gear the vehicle may be driven. Optional features include a safety light to warn of approach to control speed. Speedmaster Corp., Plainville, Conn.

P111. Refrigerating Unit

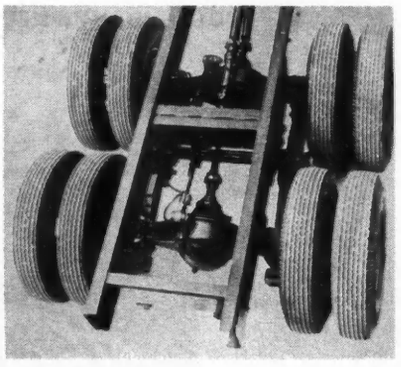
In the Dyna-Kold dry ice refrigerating unit the cooling effect is accomplished with a finned evaporator coil, operating with Freon refrigerant and



with flow controlled by a thermostatically operated solenoid valve. To insure close temperature control, forced air circulation is accomplished by an electric fan. The conventional mechanical condensing unit is replaced with dry ice. Dyna-Kold Corp., San Francisco, Cal.

P112. Dual Gear Drive

The C-B dual gear drives are made in three models. Various gear ratios in the two-speed power divider; also in the differential offer a wide range in power and speed. They are a package unit readily installed or removed. Being sev-



eral hundred pounds lighter than other types, permits them to carry a greater payload. Cook Bros. Equipment Co., Los Angeles, Calif.

END

Please resume your reading on P. 85

with HYPRESSURE Jenny STEAM CLEANER

I know! I thought we had ours trimmed to the bone. Our mechanics were consistently equalling or bettering time study standards on most jobs. Yet I knew they had to dig through mud and grease to find parts, and were constantly wiping grease from their hands and tools. I figured if I could save that lost motion we could do even better.

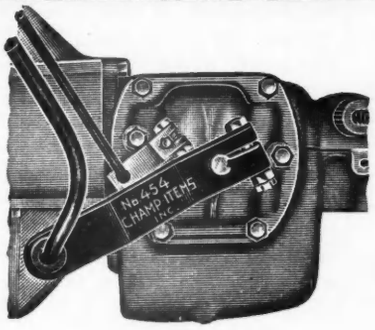
Well sir, we got a Hypressure Jenny Steam Cleaner and began to clean every job first thing when it came into the shop. You may think I'm exaggerating, but our figures show that such lost motion was costing us 25% to 40% of our mechanic's time! I know the figures are right because our cost per job has dropped about the same amount.

I don't know how we ever got along without a Hypressure Jenny before, because it is the most profitable equipment we ever bought. Why don't you write for a copy of the new booklet, "1001 Ways To Extra Profits" and see how Hypressure Jenny can save your time and money? It's free for the asking—no obligation. Write today!

HYPRESSURE JENNY DIVISION
HOMESTEAD VALVE MANUFACTURING COMPANY
"Serving Since 1892"
P. O. BOX 90 CORAOPOLIS, PA.

TIME SAVERS MONEY MAKERS

for AUTO REPAIRS by CHAMP-ITEMS



453-454

460

464

600

No. 453 & No. 454 MECHANICAL GEAR ASSEMBLIES. No. 453 for 1939 Chevrolet and No. 454 for 1940-48 Chevrolet cars — simple replacement assemblies giving positive, easy and desirable mechanical gear shifting. Each assembly a complete change-over kit — easily installed in 20 minutes! List **$3.00** each. (*Will not fit convertible models.*)

No. 460 EXTRA LONG GEAR SHIFT LEVER EXTENSION HANDLE. for Chevrolet cars. Provides easier gear shifting due to greater leverage. Made of attractive polished aluminum — 4" overall length. List **$.75** each. Also available on a self-seller display card. 12 to a card. No. 460-C.

No. 463 COPPER FUEL LINE ASSEMBLY for carburetor for all Ford, Lincoln and Mercury cars. A high quality copper tubing feed line from carburetor to fuel pump. 14¾" long. Furnished complete with brass fittings. List **$.65** each.

No. 600 STUD ASSORTMENT. Ideal for manifold — transmission — motor repairs. For all cars, trucks and tractors. 126 studs — 21 different sizes. Metal box with easy-to-find specification list mounted in lid of box. List **$.15** per stud.

RE-CONDITIONING CHAMP-ITEMS INC. SHORT CUTS

ORDER FROM YOUR JOBBER

CHAMP-ITEMS, INC. 6191 Maple Ave., St. Louis 14, Mo.

MET-L-WOOD

METAL BONDED TO PLYWOOD

Ribless BODIES

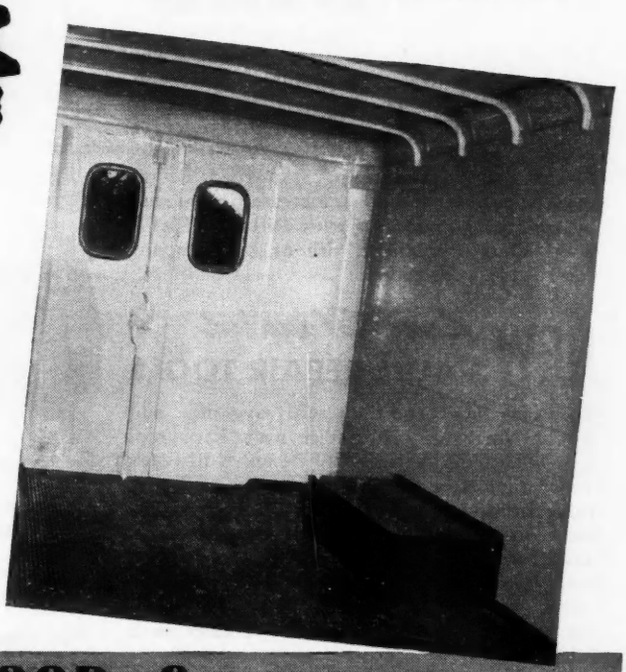
TRADE MARK

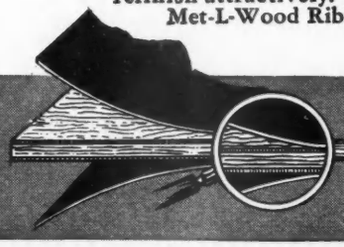
★ **MORE USABLE VOLUME**
★ **LIGHTER WEIGHT**
★ **GREATER STRENGTH**
★ **EASIER MAINTENANCE**

(Than Standard Truck Body Construction)

You get more usable volume in Ribless Bodies because they *are* ribless! And for the same reason, are lighter in weight, so that the larger available space can be fully utilized with payload instead of dead-weight. Stiffness of Met-L-Wood 2P2-⅜" panels is equivalent to ¼" *solid* steel plate — yet Met-L-Wood weighs 74% less! Maintenance is easier and more economical with Met-L-Wood Ribless Bodies because smooth, steel-faced Met-L-Wood panels, inside and out resist gouging and shock; take less time to finish or refinish attractively. Write today for data on Met-L-Wood Ribless Bodies for your trucks.

Met-L-Wood Ribless Truck Bodies are of a patented design, aimed at making the obvious advantages listed at left *pay off for you on your truck bodies.*





MET-L-WOOD CORPORATION

6755 W. 65th Street, Chicago 38, Illinois

MET-L-WOOD . . . STRONG . . . LIGHT . . . DURABLE . . . *for bigger, more economical truck payloads.*

Tests Show SAE 30 Oil Best for Summer

By B. B. Settle
Director of Service
Dodge Division, Chrysler Corp.

TRUCK ENGINES can be assisted in reaching maximum performance in the critical hot and dusty summer months which lie just ahead. Adequate lubrication is of special importance.

One of the functions of the lubricating oil in an engine is to act as a coolant for the bearings and other rubbing surfaces. Of course the cooling system must be in excellent condition to assist the oil in carrying away excess heat from the bearings and cylinders.

Oil seals the piston rings so they will hold compression and not lose power between the piston and the cylinder wall. Oil helps keep the engine clean by carrying small particles of metal, dirt and carbon from the engine to the filter element where they are deposited. This cleaning operation can be aided by changing the filter element promptly when it fills up with sediment, and also by keeping the air cleaner serviced so it operates efficiently and traps abrasive dirt before it can enter the engine.

One of the most detrimental effects of summer driving is the large amount of dust in the air during the hot, dry months. This imposes a heavier load on air cleaners to filter out abrasive particles from the air which the engine breathes. Outside air temperatures affect the temperature of oil in the crankcase. At a given sustained speed and load, the oil temperature will level out at a value that is in relation to the outside temperature.

Instruction books for the current 1950 Dodge models recommend SAE 30 grade oil for the temperature range of above 32 deg F. For several years the recommendations have been for the use of SAE 20 or 20-W oil for this range. In making this change, Chrysler Engineering and Dodge Service considered many factors.

The SAE 20 or 20-W oils can be used very satisfactorily during these months, as has been demonstrated for several years. However, based on engineering tests, there are many reasons why the heavier bodied oil in the SAE grade means greater comfort for the engine in hot weather and enables it to do its work more easily.

The chief factor that determines the suitability of oils at different temperatures is viscosity or body. Oils that are recommended for winter use possess low viscosities that make them suitable for starting the engine at these temperatures.

For example, if the minimum temperatures anticipated are as low as —10 deg F, then 10-W oils are recommended; if the minimum anticipated temperatures are plus 10 deg F, then 20-W oils are recommended. The next higher temperature range is that for a minimum of 32 deg F or freezing. This is usually considered as the summer

(TURN TO PAGE 210, PLEASE)

STOP!
HOT WEATHER
TIRE PROBLEMS

HI-TEMP *Heat-Resisting*
VALVE INSIDES AND CAPS
Developed by DILL
REG. U. S. PAT. OFF

Dill HI-TEMPS solve air pressure maintenance wherever tire heat is a problem. *Under abnormal hot tire temperatures, even up to 300°F. and more, the newly developed heat-resisting air seal keeps Dill HI-TEMP valve insides and caps airtight.* Stop road delays, prevent costly tire repairs, increase tire mileage by equipping your tires with Dill HI-TEMPS, now. Your wholesaler, tire or oil company can supply you, today.

No. 100-AH
Valve inside with special heat-resisting rubber in cup and on barrel.

No. 632
Dome type cap with swivel gasket of special heat-resisting rubber.

No. 631
Hexagon type cap with lead gasket mounted over brass sleeve.

Ask for Dill "Hi-Temp" in the new Orange and Yellow Carton.

NEW *Long-Handled* VALVE REPAIR TOOLS

This new handy tool kit will save time and trouble for your tire service man. Each tool is long-handled — especially designed to reach inner dual tires for removing and replacing valve insides, caps, and making necessary repairs on valve stems. The complete set of 6 tools comes in a handy leather pouch with snap button lock and fits in pants, coat or jacket pocket. Order from your wholesaler, tire or oil company, or write us for descriptive folder.

No. 5200 TOOL SET in Handy Leather Pouch

INCLUDES THESE TOOLS
No. 5201 Valve Inside Inserter and Extractor
No. 5202 Valve Cap Tool
No. 5203 Valve Inside "Easy-Out"
No. 5204 Valve Stem Refacer
No. 5205 Valve Stem Seat Cleaner
No. 5206 Valve Stem Re-threader

THE DILL MANUFACTURING CO.
700 East 82nd St., Cleveland 3, Ohio
Branch: 1011 S. Flower St., Los Angeles 15, Calif.

★★★★★★★★★★★★★★★★★★★★★★★★★★

JOBSERVATION

The bigger a man's head the easier to fill his shoes

★★★★★★★★★★★★★★★★★★★★★★★★★★

Truck Safety Contest...

A PLAN TO HELP PROMOTE SAFETY IN YOUR FLEET!

Sponsored by Auto-Lite Spark Plugs in Cooperation with American Trucking Associations

PROMOTE safety in your fleet! Enter this year's National Truck Safety Contest! There's no extra work, no expense, no special records to keep, no A.T.A. membership required. Just fill out the coupon below . . . it brings simple, easy directions that are certain to help you stimulate greater safety. With sixteen classifications, including both local and long distance divisions, you'll compete on an equal basis . . . with real possibilities for winning.

This is the tenth consecutive year Auto-Lite Spark Plugs have had the privilege of presenting awards to those individuals responsible for safe driving in each fleet winning first and second place in each division. Help promote safety in your fleet . . . win these valuable prizes . . . mail your coupon today!

THE ELECTRIC AUTO-LITE COMPANY
Merchandising Division
Toledo 1, Ohio — Toronto, Ontario

Gentlemen:
Safety is one of the major factors in keeping any fleet operation on a profitable basis. Our A.T.A. National Truck Safety Contest has gone a long way in emphasizing the importance of safety in America's fleets. We feel that the Auto-Lite personal safety awards given to those individuals responsible for safety in each fleet winning first and second place in each of the sixteen divisions have proven of tremendous value in stimulating interest in our contest and making it more interesting to fleet owners and their personnel. We appreciate Auto-Lite's support in backing our contest. Records prove fleet drivers are the best in the country, but let's make the record even better. Use the Auto-Lite A.T.A. Safety Contest Coupon and enter your fleet today.

Henry E. English, President
American Trucking Associations, Inc.

Get the FACTS... use this Coupon

SPARK PLUGS
IGNITION ENGINEERED
Auto-Lite Spark Plugs—Patented U.S.A.

A.T.A. SAFETY CONTEST COUPON

Electric Auto-Lite Company
Merchandising Division
Toledo 1, Ohio

Please give us full information on how we can use the National Truck Safety Contest and prizes to promote greater safety in our fleet. We understand no special records, membership or fees are required.

Name_____

Address_____

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"Follow the Leader"

One Basic Design

EQUALIZER BEAM provides equal weight distribution between the axles and acts as a "lever," reducing the power needed to lift the load over road irregularities.

TORQUE ROD permits complete absorption of torque, which is the tendency of the axles to turn backwards or forwards on their neutral axis due to starting and stopping inertia.

BALL AND SOCKET JOINTS provide the flexibility needed to prevent distortion being carried to the springs and frame.

HENDRICKSON TANDEM

HENDRICKSON'S ONE BASIC DESIGN IS RIGHT FOR EVERY TANDEM APPLICATION

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

SAE Oil Test

Continued from Page 206

range for most of the country, and it is for this range that SAE 30 oil is now being recommended.

It should be remembered that SAE 30 is not a heavy oil. It has a viscosity or body at engine oil temperatures under average summer conditions that corresponds closely to the viscosities of the lighter oils at the engine oil temperatures normally reached under the winter condition for which they are recommended.

Oils in the higher viscosity range, such as SAE 30, represent a more stable product from the oil refiner. As is well known, oil deteriorates with use, resulting in harmful contaminants in the engine. These contaminants are not only due to the breakdown of the oil but also to certain products coming from the fuel as well as those that are air-borne.

As motorists already know, oil consumption is less with SAE 30 oil than with the lower viscosity oils. In all fairness to the lighter viscosity grades, there may be a slight gain in gasoline economy with the lighter oils, but our engineers believe that this is overshadowed by the advantages of the somewhat heavier bodied SAE 30 oil.

In general, the higher viscosity oils favor reduction of engine wear. It is usually understood that the thicker oil film between rubbing surfaces does provide a slightly greater margin of safety. However, there are so many factors in driving conditions and in engine operation that contribute to wear, that an analysis to evaluate the effect of oil viscosity on any one of the factors is extremely difficult.

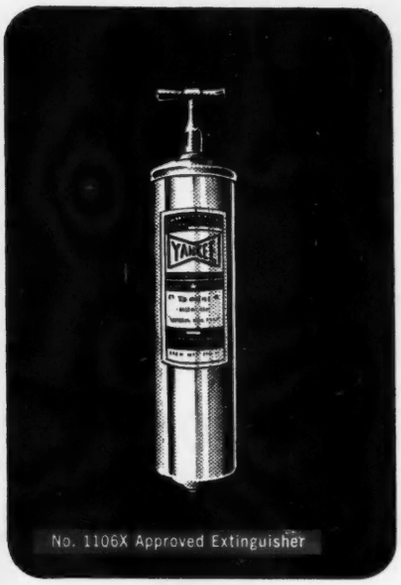
Under certain driving conditions in winter operation, for instance, water collects in the crankcase, and corrosion then becomes a factor contributing to engine wear. Low viscosity oils are used in the engine under these low temperature conditions in order to enable one to start the engine. There would be little if any relation between oil viscosity and wear in this case.

On the other hand, abrasives in the oil due to dusty road conditions combined with neglect of the proper servicing of air cleaners and oil filters can be listed as a major wear factor. The heavier oil film provided by the higher viscosity oils tends to lessen wear due to abrasives in the oil stream.

Recommendations of SAE 30 oil for summer use apply equally well to earlier models. In fact, it is felt that because of the wear resulting from longer use, older cars are more in need of higher viscosity oils than cars that

(TURN TO PAGE 216, PLEASE)

No. 920 Approved Directional Signals



No. 1106X Approved Extinguisher

No. 235 Telescopic Fender Mirror

No other accessory pays such big safety dividends at such small cost as Yankee's 920 Truck Directional Signals. Compare these features:—

- **Approved! The 920 meets new SAE Class A standards with plenty left over to spare!**
- **Lamps "demand" road attention on sunny days or stormy nights! Each 4½" lamp provides more than 12 sq. in. of illuminated lens area.**
- **Guaranteed for the life of the truck, the streamlined switch won't burn out! It fits every steering wheel column. Self-positioning – snaps back into "neutral" at the tap of a finger!**
- **Fool-proof pilot light—indicates whether or not each signal is operating—not just the switch!**
- **The rugged 920 is built to stand up to rough road treatment. All-steel lamps, bonderized to resist corrosion, then given a heavy coat of baked black enamel.**
- **You need no extras with the 920 – it's the *complete* truck signal set–2 red rear lamps, 2 amber front lamps, heavy-duty switch, flasher, wire and hardware for complete installation.**
- **The Yankee No. 920 gives you much more than any other and yet it's the lowest priced *quality* truck directional signal on the market!**

All these plus features–and yet priced to meet even the smallest operating budget. Order a set of 920's from your jobber today. At the same time ask to see the new Approved 1106X Yankee Fire Extinguisher. Filled with carbon tetrachloride. Also the No. 235 Telescopic Fender Mirror with diminishing glass built to withstand fender vibration; extends to 18" for all-over vision. For complete catalog and name of your nearest Yankee jobber write to Department CCJ-60, YANKEE METAL PRODUCTS CORPORATION, NORWALK, CONNECTICUT.

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YOUR COMPLETE ACCESSORY LINE

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Says:-

"In my book, operating efficiency depends largely on keeping our coaches out of the major repair stalls . . . Our Clayton dynamometers make this possible with a minimum expenditure of time, man-power and money."

RUN-IN TESTS UNDER LOAD INSURE FULL POWER ON THE ROAD

Clayton Engineers have retained the inherent low cost of the hydraulic dynamometer, yet through outstanding development, are able to guarantee positive as well as flexible control of the torque load set for the engine to be run-in or tested. The load can be varied instantly at will, or it can be maintained indefinitely without the slightest change. Surging or "hunting" has been eliminated. Torque loads may be increased or decreased and then reestablished without sacrificing accuracy in any degree. Standard equipment of Model 17-500-CE (illustrated above) includes direct reading electric speed and horsepower meters. Get the whole story on the Clayton Turbo-Closed System Absorption Dynamometer. Mail the Coupon below.

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Without cost or obligation, send complete literature on Engine Dynamometers for fleet operators.

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Ford Transmission

Continued from Page 111

because of the greater torque loads imposed in low and reverse, is wider and heavier than the front and has a 0.050-in. semi-metallic friction facing, also cemented to the band. Front and rear servos have die cast bodies and pistons. The sleeve and actuating lever of the front servo also are die cast but, because of the greater loads encountered, a steel forging is used for the rear servo actuating lever.

Front and rear oil pumps are of the I.X. type and both are the same diameter. The former, driven by the engine, has a cast iron body and is 5/8-in. wide, while the rear pump which is 5/16-in. wide has a die cast body.

The path through which power travels in the various ratios is determined by two clutches and two brake bands, all hydraulically actuated. The forward clutch is engaged in all forward speeds and is disengaged in neutral and reverse. The rear clutch is engaged in high and reverse. The forward band is engaged in intermediate only while the rear band is used for both low and reverse.

Oil under pressure to charge the converter, actuate and control clutches and bands, and pressure lubricate the assembly is delivered by two oil pumps. one driven at all times by the engine, the other by the output shaft.

Low servo pressure is regulated by a valve to soften the engagement of the low band on the shift from drive to low range. Still another valve, known as the low inhibitor, is acted upon by governor pressure and at speeds above 40 mph is so positioned as to keep the transmission from shifting into low range.

No adjustments whatever are provided in the hydraulic control system. In the entire transmission installation there are only four adjustments. It is expected that the unit will be available first on Mercury cars, later on Ford passenger cars. There is no prediction yet as to truck models.

END

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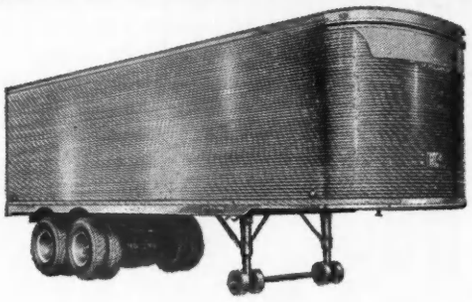
WOLF'S HEAD
MOTOR OIL AND LUBES
100% PURE PENNSYLVANIA
Member, Penna. Grade Crude Oil Association

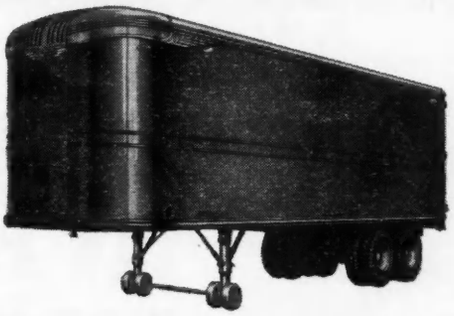
ONLY FRUEHAUF OFFERS YOU ALL THREE!

1 STAINLESS STEEL



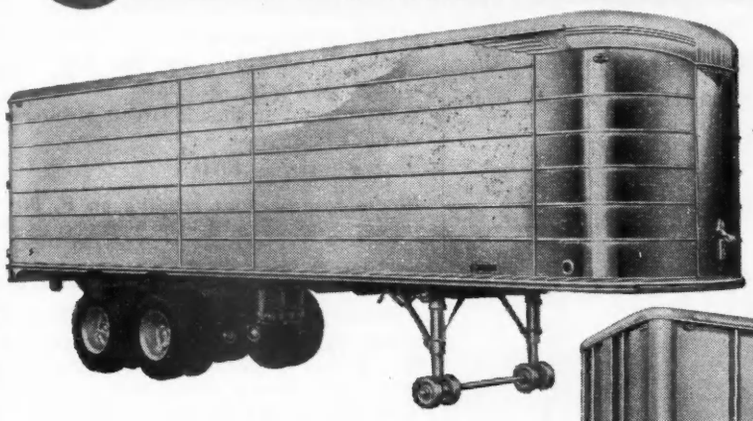
Lighter-yet-stronger construction permits "bonus" loads up to 4000 lbs. Rustproof, corrosion-resistant Stainless Steel never needs painting. All popular lengths . . . Gravity-Tandem or single-axle "Multi-Rate" Suspensions.

2 AEROVAN (Hi-Tensile Steel)



Rugged integral-frame construction of hi-tensile steel. DOUBLESEAL door is one of many new exclusive Aerovan features. All popular lengths . . . with Gravity-Tandem or single-axle "Multi-Rate" Suspensions.

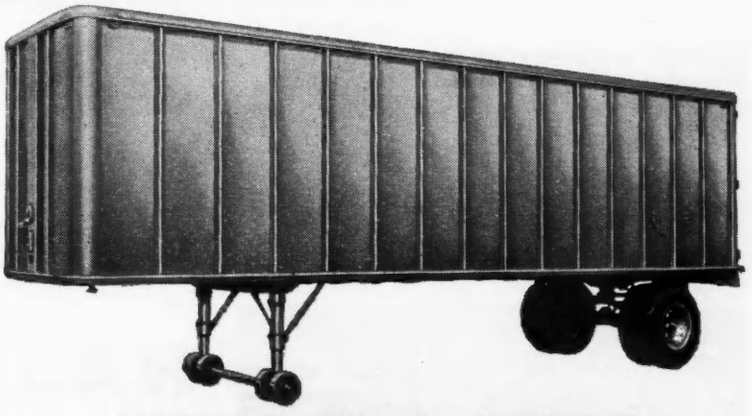
3 AND TWO NEW ALUMINUM VANS!



NEW FRUEHAUF

ALUMINUM VAN

Strongest Aluminum Trailer built today! Exclusive Fruehauf features include Supports, Wheels, Roof, Doors and sub-frame cross-members of Aluminum; Magnesium Floor. 30- and 32-ft. lengths . . . Gravity-Tandem or single-axle "Multi-Rate" Suspensions.



NEW FRUEHAUF-CARTER CORRUGATED TYPE

ALUMINUM VAN

Rugged corrugated construction eliminates weight-adding frame . New lightweight features include 2-Speed Supports, Wheels, Roof, Doors, extruded body parts and sub-frame cross-members of Aluminum. 30- and 32-ft. lengths . . . Gravity-Tandem or single-axle "Multi-Rate" Suspensions.

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DETROIT 32 • LOS ANGELES 58

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ONLY **FRUEHAUF** *HAS A COMPLETE LINE OF TRUCK-TRAILERS*

1 STAINLESS STEEL
2 AEROVAN (Hi-Tensile Steel)
3 ALUMINUM

Accessibility Keynote in Peterbilt's C.O.E.

Continued from Page 78

gine cover attached to the cab floor, the engine is completely accessible for grinding valves, resleeving or any other service function.

The entire power plant including the engine, clutch, transmission and controls can be removed by tilting the cab forward 90 deg. Tilting is accomplished with the use of a shop hoist, by disconnecting the two rear mounts, removing the steering wheel (the steering post remains in place), the engine cover from the cab floor, the floorboard and driver's seat. The exhaust system is disconnected at the flange, leaving the muffler and stack attached to the cab. Finally, clutch, brake and throttle controls must be disconnected by removing a clevis pin from each. It is not necessary to disturb or disconnect any electrical wiring nor any fuel, air or water lines. After the cab has been tilted, it is secured by two steel cables running from the frame to the rear of the cab.

The only time the cab is tilted is to facilitate the complete removal of the engine. All other service functions, including removal of transmission, clutch and controls can be performed with the cab in its normal position.

Cab Details

THE CAB, whose floor line is slightly below the top line of the engine, is rubber-mounted and extends the full width of the body. The bucket-type spring-mounted seats have sponge rubber cushions and are upholstered in hand-buffed Spanish leather. In the transmission shift controls, specially designed by Peterbilt, many working and wearing parts found in some remote control systems have been eliminated. The hinged instrument panel has rheostat controlled lighting and the switches and controls are located in convenient positions. The wide doors are sealed against drafts and rain and are equipped with adjustable side wind wings. These wings plus the cowl ventilator and sliding rear window permit the driver to select the cab ventilation for comfort.

The driver sits about 16 in. higher than in conventional trucks which is said to place him above the rays of oncoming headlights. He also sits far enough forward to have maximum vision up and down side streets at intersections.

END

Please resume your reading on P. 80

Tennessee Town Treats Truckers

Half way between Nashville and Knoxville on U. S. Highway 70-N is the friendly town of Cookeville, 5000 population. When over-the-road men stop at the Triangle Cafe, the chances are they'll find a ticket on their windshield when they come out. Unlike most tickets urging attendance at the local constabulary, this one is a courtesy card. It invites the driver to "park on the Public Square or street" in order to sleep and "Write below the time you want to be called and police will wake you."

Mayor D. S. Mahler says, "Truck drivers are doing an important job and we like to have their business. The least we can do is give them a chance to take a quick nap between runs."

Ford Sales Boom

Ford car and truck sales set a 20-year high for the first four months of this year. For the four months of 1950, the car sales total was 388,323 and truck sales total was 101,999 units.

CABLE LIFT TIRE CARRIERS
FRAMELESS
For Frameless Trailers
SIDE MOUNT
For Frame
Trailers
UNDER FRAME
For Trucks
SLANT BASKET TIRE CARRIERS
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For Frame and
Frameless Trailers
REGULAR FORM
FULL FORM
WRAP-AROUND
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One single highly specialized source provides you with the proper type of carrier for your vehicle. Light in weight, rugged in construction, Nash Tire Carriers are recommended for either original equipment or replacement.
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SELF-CONTROL STARTS HERE

AND TO RESTORE
ENGINE PERFORMANCE

OIL-CONTROL STARTS HERE

To Stop Oil-Pumping, Replace Worn Engine Connecting Rod Bearings

You don't feel like crowing when you've "fixed" an oil-pumper . . . and find that it still pumps oil. Too frequently, the whole blame is placed on the piston rings. Worn bearings are the *first* cause of oil pumping, and can decrease the life and efficiency of piston rings, too.

Replace worn bearings in sets. Remember, just one badly worn bearing can oil-starve others until they, too, fail. It's assurance against come-backs when you replace with Genuine Federal-Mogul Oil-Control Bearings. *They're engineered for the job!*

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control oil-pumping where it starts—REPLACE WITH

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OIL CONTROL

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★ PHASE MAINTAINED
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SNAP-ON TOOLS CORPORATION
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SAE Oil Test

Continued from Page 210

are new or almost new. While providing more adequate lubrication, the use of higher viscosity oils should result in a slightly lower oil consumption in a car which has been driven for a considerable number of miles. The fact that throughout the country more SAE 30 oil is sold than any other grade indicates that owners of older vehicles and filling station attendants are aware of the advantages of the higher viscosity oil.

END

★★★★★★★★★★★★★★★★★★★★★★★★★★

JOBSERVATION

When success turns a man's head it should also wring his neck

★★★★★★★★★★★★★★★★★★★★★★★★★★

BETTER than Ever Before

The fastest growing idea in the auto repair business today!

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of CARBURETOR REBUILDING
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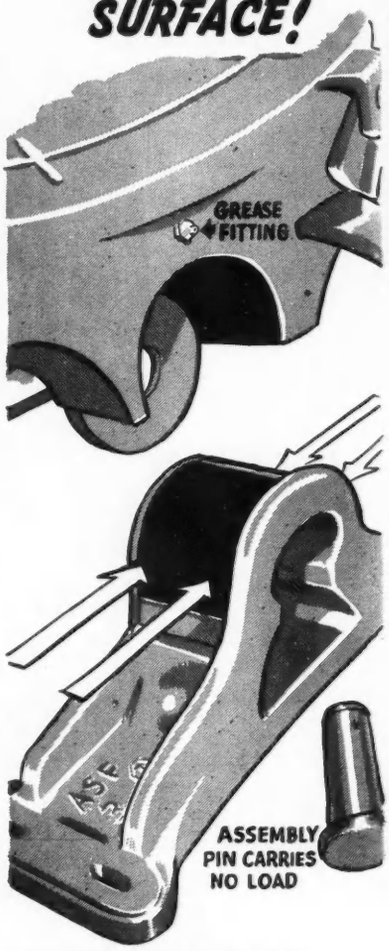
26 SQUARE INCHES OF BRACKET BEARING SURFACE!



EXCLUSIVE!

Here's the *biggest* bracket bearing area, by far, of any 5th wheel—26 square inches of rugged cast-steel contact. See how trailer weight is carried on big-diameter bosses (*black in illustration*) . . . how power and braking (*arrows*) have no tendency to "lift" the plate. This better, longer-lasting bracket design is one of *many* ASF exclusives. Write for free illustrated folder. *American Steel Foundries, Automotive Division, 400 N. Michigan Ave., Chicago 11, Ill.*

A-S-F Safety 5th WHEELS

FOR TRACTOR-TRAILER COUPLING